

Capture GUITM

The User Tracking Component of
iSecurity



GUI User Manual Version 3



Updated: 12/29/2009

Table Of Content

Copyright Notice	i
About This Manual	ii
Who Should Read This Book	ii
Terminology	ii
Documentation Overview	ii
<i>Printed Materials</i>	ii
<i>On-Line Help</i>	ii
<i>Typography Conventions</i>	ii
Chapter 1: Introducing iSecurity	4
What is iSecurity?	4
Why You Need iSecurity	4
How iSecurity Works	4
<i>Top-Down Security Design</i>	4
<i>iSecurity Rules and the Best Fit Algorithm</i>	5
<i>FYI Simulation Mode</i>	6
<i>Emergency Override</i>	6
<i>Rule Wizards</i>	6
<i>Activity Log</i>	6
<i>Business Intelligence - Visualizer</i>	6
<i>iSecurity</i>	7
<i>Assessment</i>	7
<i>Firewall</i>	7
<i>Audit</i>	7
<i>Action</i>	7
<i>Anti-Virus</i>	8
<i>View</i>	8
<i>Capture</i>	8
<i>Screen</i>	8
<i>Password</i>	8
<i>AP-Journal</i>	8
Chapter 2: Getting Started	10
Create a New Account	10
Running iSecurity GUI in SSL mode	12
Account Information Properties	16
<i>Connection timeout</i>	18
<i>Item</i>	19
Deleting an Account	21
Account Sessions	22
Creating a New Session	23

<i>Disconnecting a Session</i>	26
<i>Session Properties</i>	27
<i>Item</i>	28
<i>Session</i>	29
Restore the Navigator	31
Application Password	32
Screens and Editors	33
<i>Editors</i>	34
Nodes with filter	35
Updated new features and version	36
<i>iSecurity Archived Update Site</i>	39
Reporting problems in iSecurity GUI	39
<i>Log Preferences</i> window	39
<i>Editors</i>	41
<i>Last Modified Editor</i>	43
<i>Editor Display</i>	44
<i>Open editor display</i>	45
<i>Editor Filter</i>	46
Rule Wizards	48
Preferences	50
Capture GUI	53
Capture	53
Activating Capture	53
<i>Manual Activation</i>	54
<i>Automatic Activation</i>	54
<i>Verifying that the Capture Monitor is Active</i>	54
<i>Enable/Disable Capture</i>	55
Capture Rules	55
Capture Data	58
Capture HTTP	59
IP Names	59
Sessions	61
Chapter 4: Maintenance	66
Collected Data	66
Setup *PRINT1-*PRINT9	67
Global Configuration	69
iSecurity Part 1 Global	69
<i>Export/Import Definitions</i>	69
Firewall Specific	70
<i>Save Firewall Log</i>	70
<i>Set Firewall Defaults</i>	71
Screen Specific	73
<i>Delete Screen Log Entries</i>	73
Password Specific	73

<i>Copy Dictionary Language</i>	73
Appendix: License Agreement	ii
Preamble	ii
GNU LESSER GENERAL PUBLIC LICENSE	iii

Copyright Notice

© Copyright Raz-Lee Security Inc. All rights reserved.

This document is provided by Raz-Lee Security for information purposes only.

Raz-Lee Security® is a registered trademark of Raz-Lee Security Inc. Action, System Control, User Management, Assessment, Firewall, FileScope, Screen, Password, Audit, Capture, View, Visualizer, Anti-Virus, AP-Journal © are trademarks of Raz-Lee Security Inc. Other brand and product names are trademarks or registered trademarks of the respective holders. Microsoft Windows® is a registered trademark of the Microsoft Corporation. Adobe Acrobat® is a registered trademark of Adobe Systems Incorporated. Information in this document is subject to change without any prior notice.

The software described in this document is provided under Raz-Lee's license agreement.

This document may be used only in accordance with the terms of the license agreement. The software may be used only with accordance with the license agreement purchased by the user. No part of this document may be reproduced or retransmitted in any form or by any means, whether electronically or mechanically, including, but not limited to: photocopying, recording, or information recording and retrieval systems, without written permission given by Raz-Lee Security Inc.

Visit our web site at www.razlee.com.

Record your product authorization code here.

Computer Model	
Serial Number	
Authorization Code	

About This Manual

Who Should Read This Book

This user guide is intended for all System i system administrators and in particular for security administrators responsible for the implementation and management of security on System i systems.

Terminology

This manual attempts to adhere to standard IBM iSeries (System i) terminology and conventions whenever possible. However, deviations from IBM standards are employed in certain circumstances in order to enhance clarity or when standard IBM terminology conflicts with generally accepted industry conventions.

Documentation Overview

Raz-Lee takes customer satisfaction seriously. Therefore, our products are designed for ease of use. The documentation package includes a variety of materials to get you up to speed with this software quickly and effectively.

Printed Materials

This user guide is the only printed documentation necessary for understanding this product. It is available in user-friendly PDF format and may be displayed or printed using Adobe Acrobat Reader version 4.0 or higher. Acrobat Reader is included on the product CD-ROM.

This manual contains concise explanations of the various product features as well as step-by-step instructions for using and configuring the product.

On-Line Help

PC based on-line help is also available in JavaHelp format. Click the Help button from your Firewall menubar.

Typography Conventions

This document is intended to be printed by the end user and viewed on-line using a variety of different PC platforms. Accordingly, it was written using standard Windows TrueType fonts that are installed on virtually all systems. You do not need to install any special fonts in order to view or print this document.

- Body text appears in 10-point Times New Roman.
- Menu options, field names, and function key names appear in **Arial Bold**.
- OS/400 commands, system values, data strings, etc. appear in ***Bold Italic***.
- Key combinations are separated by a dash, for example: **Shift-Tab**.
- Referrals to chapters or procedures appear in *Times New Roman Italic*.

1

Introducing iSecurity



Chapter 1: Introducing iSecurity

What is iSecurity?

iSecurity is a comprehensive network security solution that completely secures your System i against all known external threats, and also controls what users are allowed to do **after** access is granted. **iSecurity** is a robust, cost-effective, security solution.

iSecurity is by far the most intuitive and easy-to-use security software product on the market today. Its top-down functional design and intuitive logic create a work environment that even novices can master in minutes. **iSecurity** features a user-friendly, Java-based GUI and an System i Navigator (OpsNav) plug-in.

Why You Need iSecurity

Once upon a time, the System i was used almost exclusively in a closed environment, with host systems connected to remote data terminals via proprietary technologies. Within this closed environment, the security features of the OS/400 operating system provided the strongest data and system security in the world. User profiles, menus, and object level security provided all the tools necessary to control what users were allowed to see and do.

In today's world of enterprise networks, PCs, distributed databases, the Internet and web technologies, closed computing environments are all but extinct. Technological advances compelled IBM to open up the System i and its OS/400 operating system to the rest of the world. This new "openness" brought with it many of the security risks inherent in distributed environments.

The simple fact is that users accessing the System i and its databases externally can easily bypass native OS/400 security. System administrators need to equip themselves with a new generation of security tools to combat these evolving threats. **iSecurity** is just such a tool. It enhances native OS/400 by controlling access via all known external sources and controlling precisely what users are permitted to do once access is granted.

How iSecurity Works

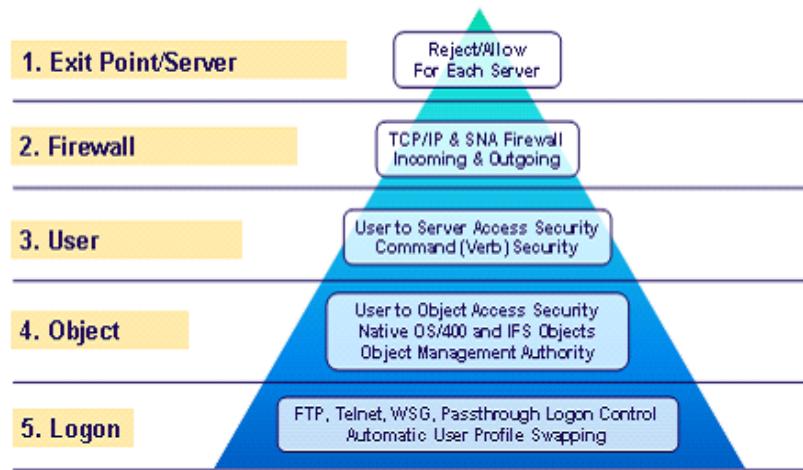
Top-Down Security Design

Top-down security design means that the process of designing and applying security rules follows the most efficient and logical path possible. In other words, this means you have to design far fewer rules in order to achieve maximum security and your System i needs to process apply rules to far fewer transactions than many similar products. You save planning and maintenance time as well as valuable system resources.

Top-down security designs a simple hierarchy of rule types. When a higher level rule type fully meets your security requirements, you do not need to define any more rules for that situation. The following drawing illustrates this concept.



Top Down Security Design



iSecurity Top-Down Security Design

System i security is based on five basic levels:

- Server/Exit Point Security
- TCP/IP Address Firewall Security
- User-to-Service Security
- Object Security
- Logon Security (provides additional security features once access has been granted)

Simply put, whenever a higher, less specific rule will suffice, you do not need any more specific rules. For example, if you do not need to use FTP, you simply reject all transactions at the FTP Server/Exit Point level. You do not need to define any rules that limit FTP access via specific IP addresses, by specific users, or to specific objects.

iSecurity Rules and the Best Fit Algorithm

iSecurity is a rules-based security product. You create a wide variety of rules to cover many different situations and to counter different kinds of threats. Some rules will likely apply globally to all or most activity types while others will be designed to cover very specific situations.



You can enable FYI Simulation mode globally for all activity regardless of server or user. You can also enable FYI individually for specific function servers as a parameter in server security rules. In this manner, you can test security rules for specific servers without affecting rules that apply to other servers.

FYI Simulation Mode

FYI Simulation mode allows you to simulate the application of security rules without physically rejecting any activity. All “rejected” transactions are recorded in the Activity log as such but the activity is allowed to proceed without interruption. This feature allows you to test your rules under actual working conditions without adversely affecting user success.

FYI Simulation mode may be enabled globally for all activity or enabled for individual function servers. In this manner, you can test security rules for specific servers without affecting rules that apply to other servers.

Emergency Override

The Emergency Override feature allows you to override all existing security rules temporarily by allowing or rejecting all activity. This feature is useful in order to respond quickly to emergencies such as critical transactions being rejected due to problems with **iSecurity** security rules or a sudden security breach.

Rule Wizards

The unique Rule Wizards feature makes security rule definition a snap, even for non-technical system administrators. This user-friendly feature allows you to view historical activity together with the security rule currently in effect on a single screen. You can even modify the existing rule or define a new rule without leaving the wizard! The Rule Wizards are an invaluable tool for defining the initial set of rules after installing **iSecurity** for the first time.

Activity Log

The Activity Log provides complete details of every transaction captured by a security rule. You have full control over which activities are included in the Activity Log and under which conditions.

Highly-defined filter criteria allow you to select only those records that you need to examine by using Boolean operators and the ability to combine complex logical conditions. You have full flexibility to specify the sort order according to multiple fields.

Business Intelligence - Visualizer

Visualizer is an advanced data warehouse solution for graphically displaying security data. It allows IT managers to analyze security-related system activity quickly and easily using a



stunning graphical interface. **Visualizer** eliminates the need for time-consuming log-scanning and tracking activities that tie up system resources and increase operating costs.

iSecurity

Raz-Lee's **iSecurity** is an integrated, state-of-the-art, security solution for all System i systems, providing cutting-edge tools for managing all aspects of network access, data, and audit security. Its individual components work together transparently, providing comprehensive "out-of-the-box" security. Other **iSecurity** products include:



Assessment

Assessment checks your ports, sign-on attributes, user privileges, passwords, terminals, and more. Results are instantly provided, with a score of your current network security status with its present policy compared to the network if iSecurity were in place.



Firewall

Firewall protects and secures all types of access, to and from the System i, within or outside the organization, under all types of communication protocols. **Firewall** manages user profile status, secures entry via pre-defined entry points, and profiles activity by time. Its Best Fit algorithm determines the validity of any security-related action, hence significantly decreasing system burden while not compromising security.



Audit

Audit is a security auditing solution that monitors System i events in real-time. It includes a powerful query generator plus a large number of predefined reports. Audit can also trigger customized responses to security threats by means of the integrated script processor contained in **Action**.



Action

Action automatically intercepts and responds to security breaches, system activity events, QHST contents, and other message queues. Inquiring messages can be automatically answered. Alerts are sent by e-mail, SMS, pagers, or the message queues. Command scripts with replacement variables perform customized corrective actions, such as terminating a user session or disabling a user profile.



Anti-Virus

Anti-Virus provides solid virus protection that prevents your System i from becoming an infection source. **Anti-Virus** automatically scans and examines all incoming IFS files, validating and checking them as they are enrolled or modified. Anti-Virus authenticates them, and finally quarantines or erases infected files.



View

View is a unique, patent-pending, field-level solution that hides sensitive fields and records from restricted users. This innovative solution hides credit card numbers, customer names, etc. Restricted users see asterisks or zeros instead of real values. **View** requires no change in existing applications. It works for both SQL and traditional I/O.



Capture

Capture silently captures and documents user screens for tracking and monitoring, without any effects on system performance. It also preserves job logs for subsequent review. capture can run in playback mode and can be used to search within texts.



Screen

Screen protects unattended terminals and PC workstations from unauthorized use. It provides adjustable, terminal- and user-specific time-out capabilities.



Password

Password provides a first-tier wall of defense for users by ensuring that user passwords cannot be easily cracked and guessed.



AP-Journal

AP-Journal automatically manages database changes by documenting and reporting exceptions made to the database journal.

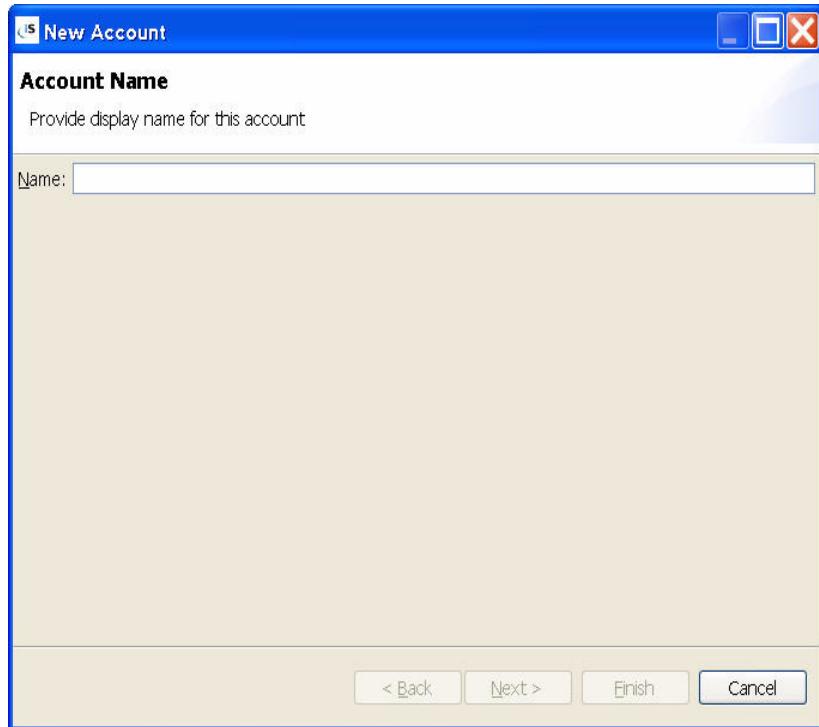
Getting Started



Chapter 2: Getting Started

Create a New Account

1. Click the **iSecurity** symbol on your desktop.
2. Right-click in the iSecurity navigator view
3. Select **New Account...**, the **Account Name** screen appears. Type account name and click **Next**



New Account

4. In the **Connection** screen, enter **Host**, **User**, and **Password** in the correct fields, and click **Finish** or **Next**

Create a New Account



New Account

Connection (2/3)

Connection information

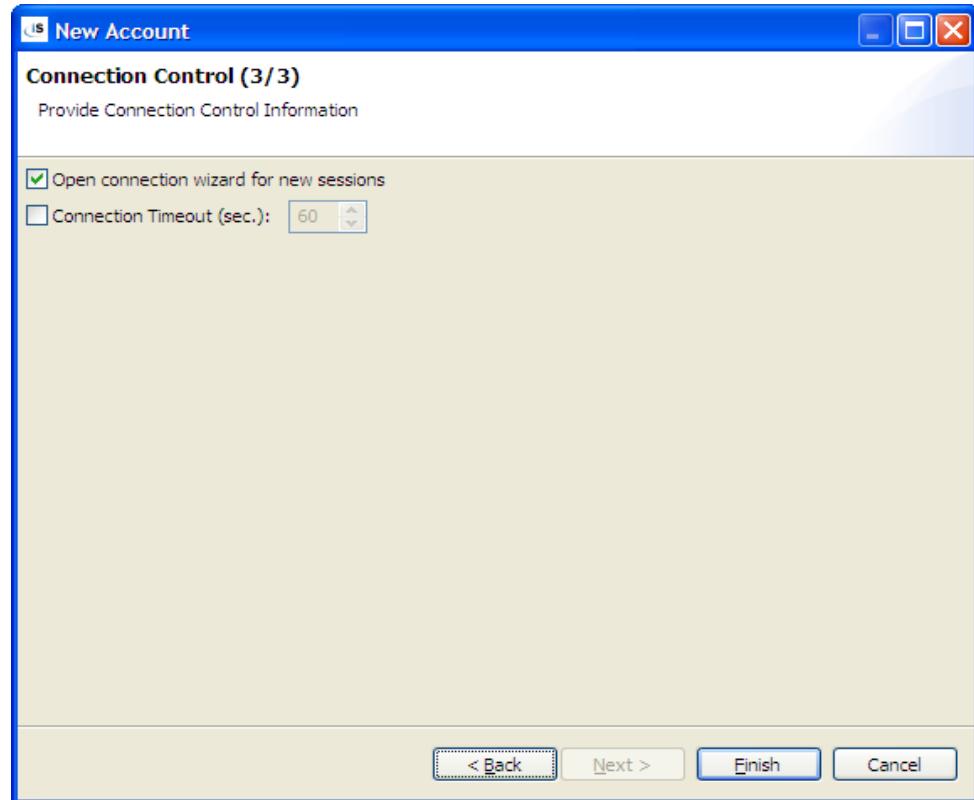
Host:	1.1.1.100
User:	QSECOFR
Password:	*****
Operator Password:	

Use SSL
[Current SSL settings](#)

Saved passwords are stored on your PC in a file that is difficult, but not impossible, for an intruder to decrypt.

New Account - Connection

5. When clicking **Next**, the **Connection Control** screen appears. Check the **Open Connection Wizard** if you wish the application to prompt for new sessions. This is just a conveniences issue that suits those cases where all required information for making a connection is supplied.
6. Check the **Connection Timeout** and type after how many seconds to stop the attempt to connect.



Connection Control

NOTE: *The only required field for an account is a name. The account stores user's data on the disc in a file that is difficult but not impossible for an intruder to read, so care should be taken here.*

Running iSecurity GUI in SSL mode

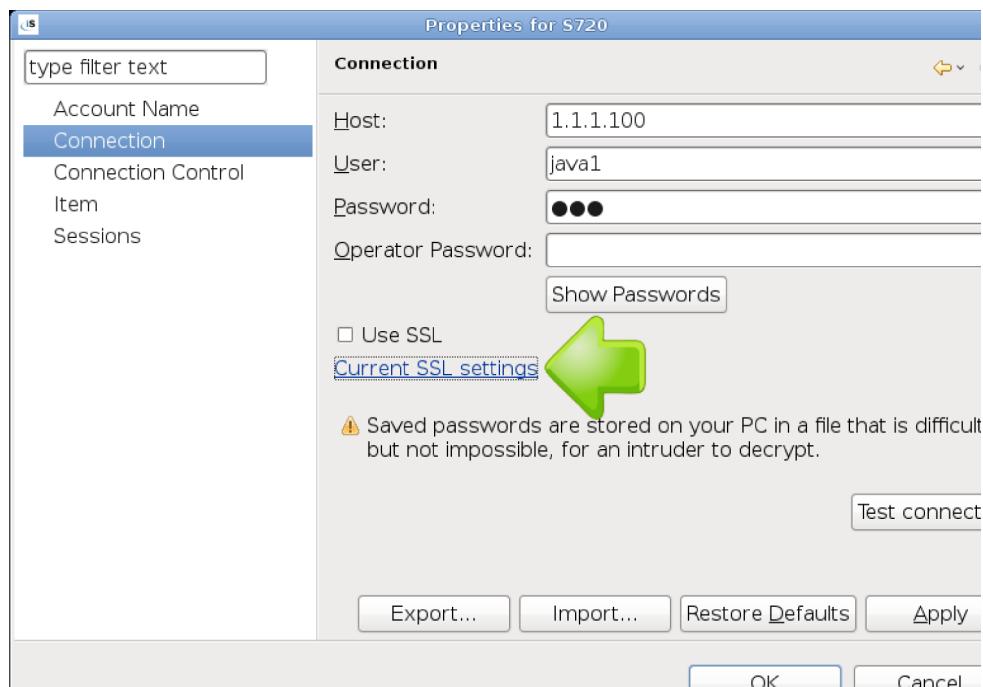
1. Open a web browser to your AS400 system (usually, port 2001 is used). Click on "Digital Certificate manager", On the left, click on "Install Local CA Certificate on Your PC", click on "Copy and paste certificate". Cut and paste the certificate into notepad, save the file with a name such as "ca.txt" to iSecurity installation location (c:\programfiles\isecurity by default).
2. On your PC open the command prompt and change directory to iSecurity installation location (c:\program files\isecurity by default)



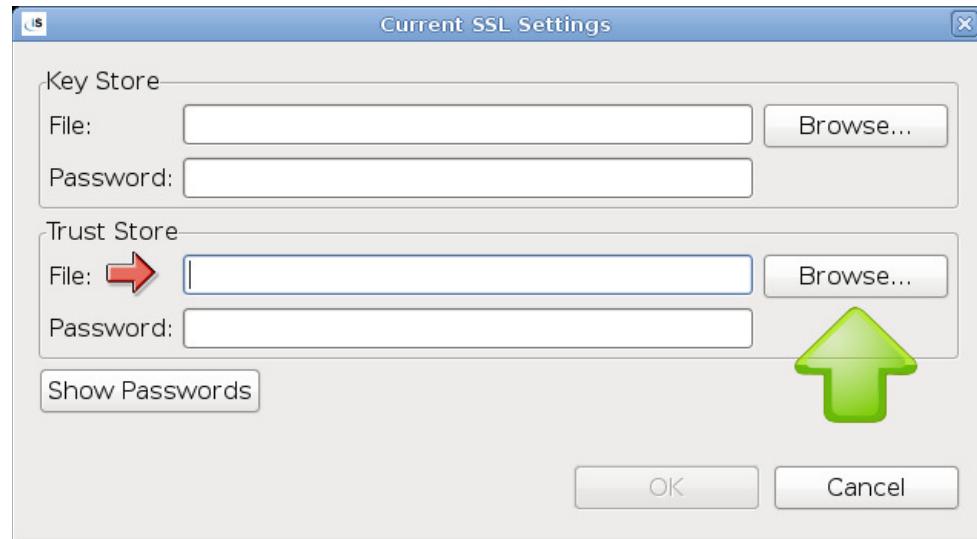
3. From that location use the Java tool keytool to import the certificate into a trust list. Issue the command: "jre\bin\keytool -import -v -trustcacerts -alias <aliasName> -file ca.txt -keystore trustlist". (alias is just optional) This will create a file called "trustlist" and during the command it will prompt you to establish a password for this file.
4. This step can be performed either from command line or from within the GUI itself.
 - Command line: From the command prompt from within the iSecurity installation location issue this command: isecurity.exe -vmargs -Djavax.net.ssl.trustStore=trustlist-Djavax.net.ssl.trustStorePassword=pwd
 - Replace trustlist and pwd with your own (these are the parameters used in step 3)

The trustlist parameter is the absolute path to the file itself including file name (c:\....\trustlist) but if this file resides on iSecurity installation location, there is no need to type the path.

 - GUI: (see also #6 on persistent) Account properties (you have this link also on session prompt):

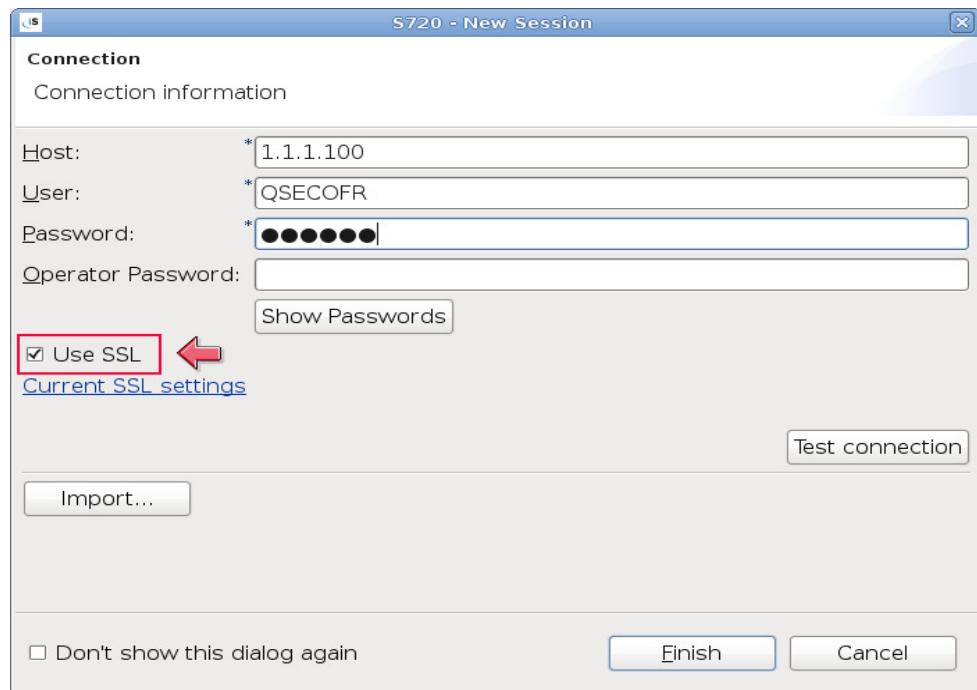


Point application to the trust store file and supply password:



5. When connecting to a server that support SSL make sure to check the SSL check box:

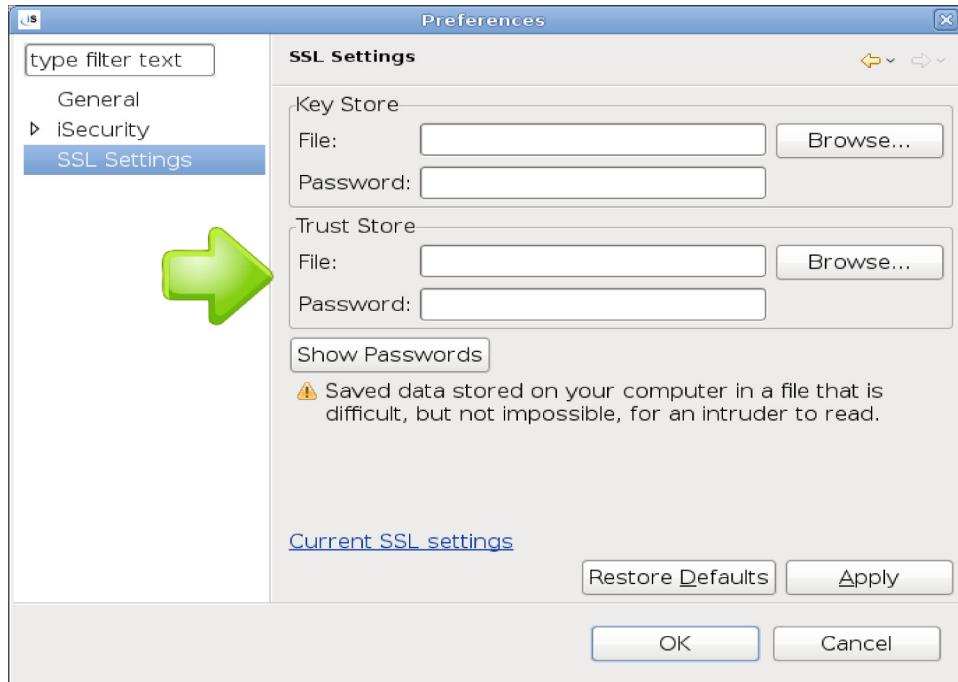
Running iSecurity GUI in SSL mode



6. Persistent of SSL settings Open Preferences dialog and click on SSL Settings in the navigator tree:



Account Information Properties



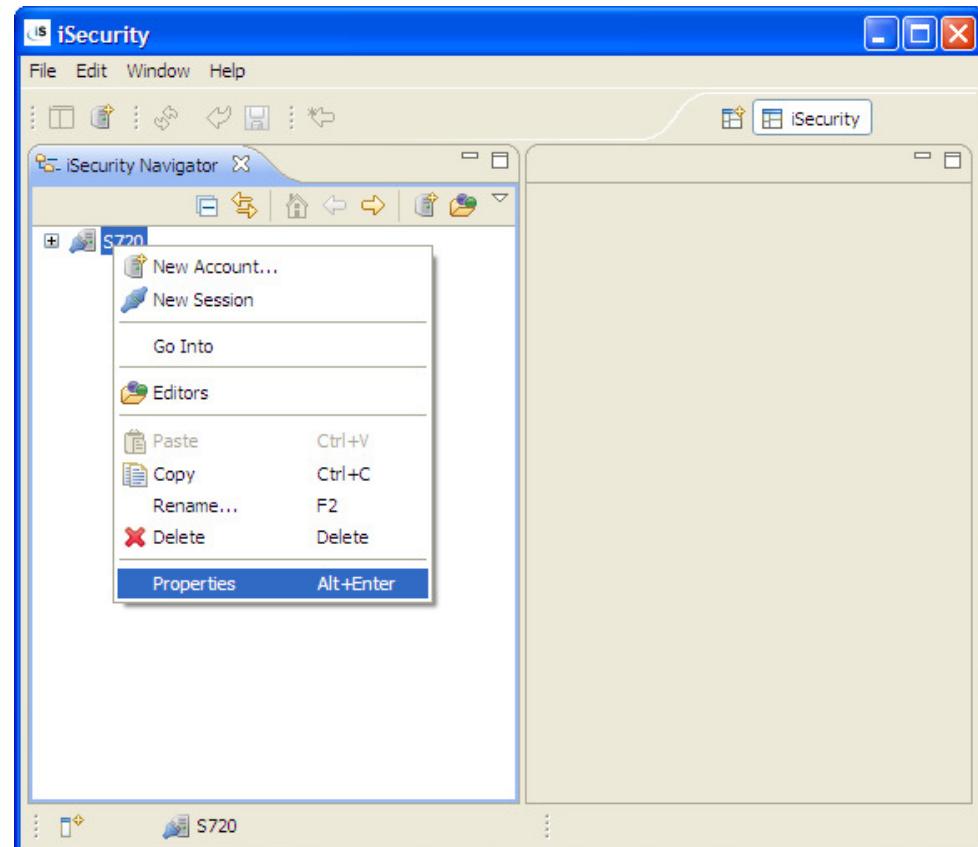
Data entered here is persisted. The next time iSecurity GUI is invoked, these definitions become "Current" and are used if SSL connection is selected. Change "Current" settings to a different values without them being persisted at any time.

Account Information Properties

Once an account is created it is added to iSecurity navigator.

An account can be modified by right clicking on it and selecting **Properties**

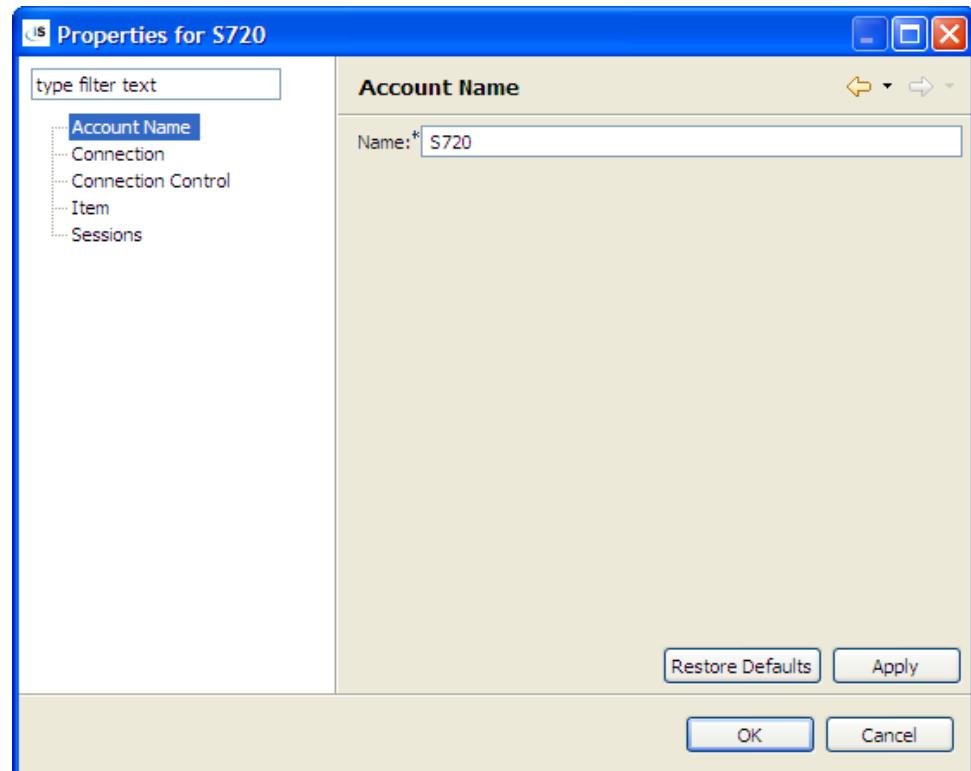
Account Information Properties



Account Properties



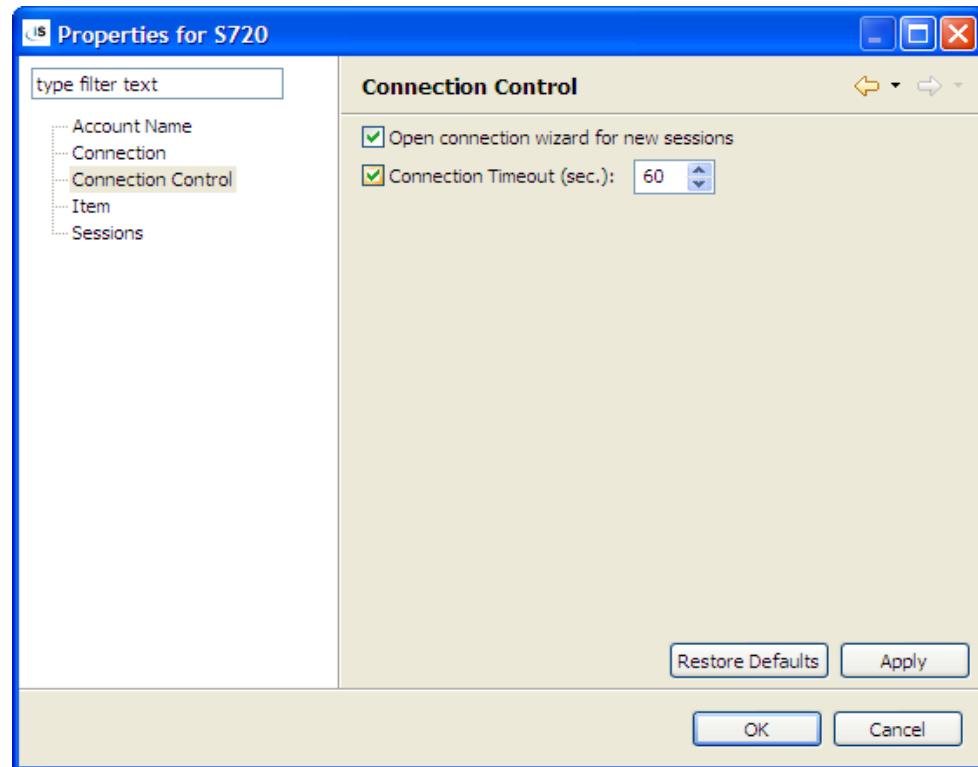
Account Information Properties



Account Properties

Connection timeout

GUI will stop the attempt to connect after the specified time defined in **Connection Control**



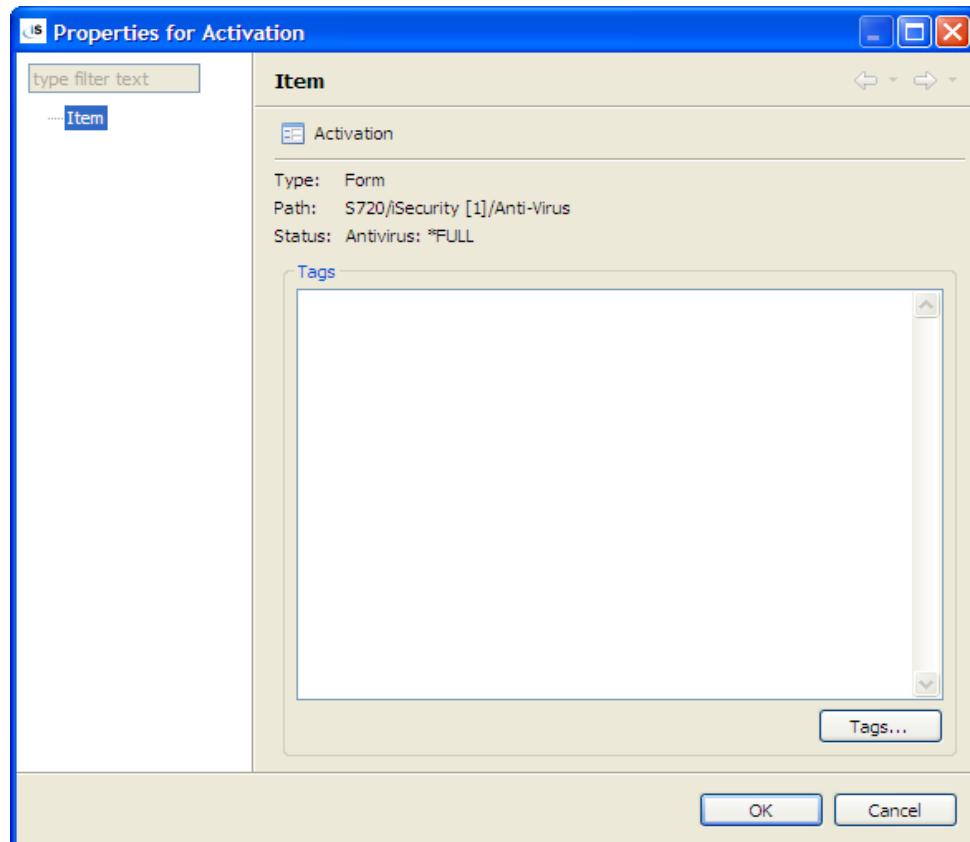
Connection Control

Item

Display node authorization and tag it for easier search of the specific item in the GUI application.



Account Information Properties



Properties Item

Add a new tag or assign an existing one

Deleting an Account



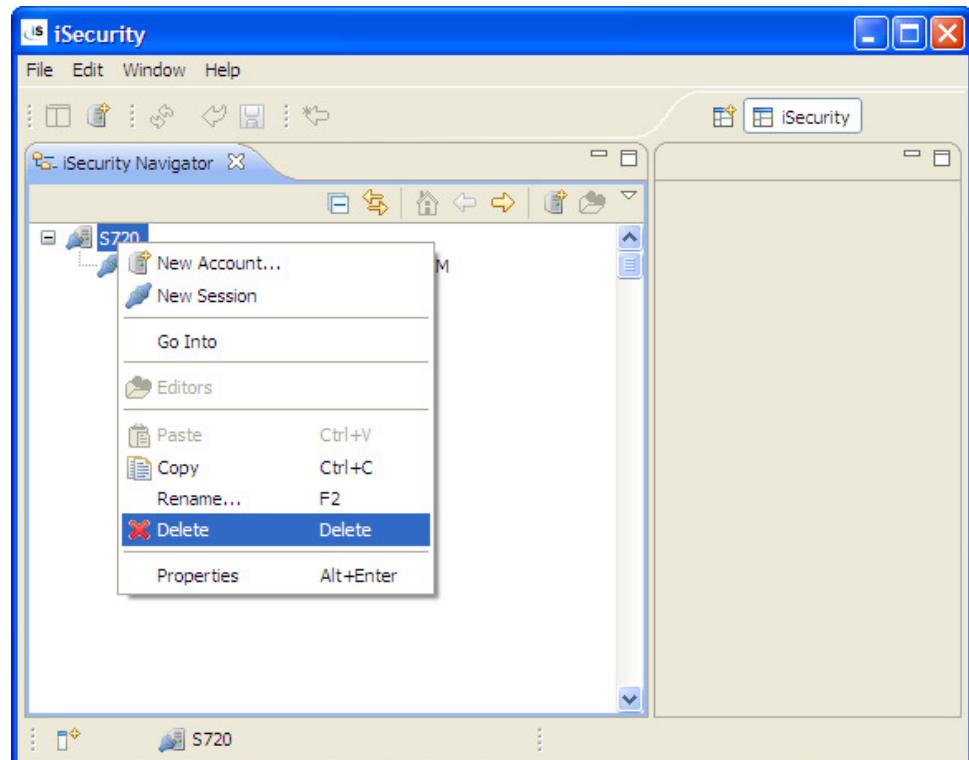
Tag

Deleting an Account

Account can be deleted by right clicking on it and selecting **Delete**



Account Sessions



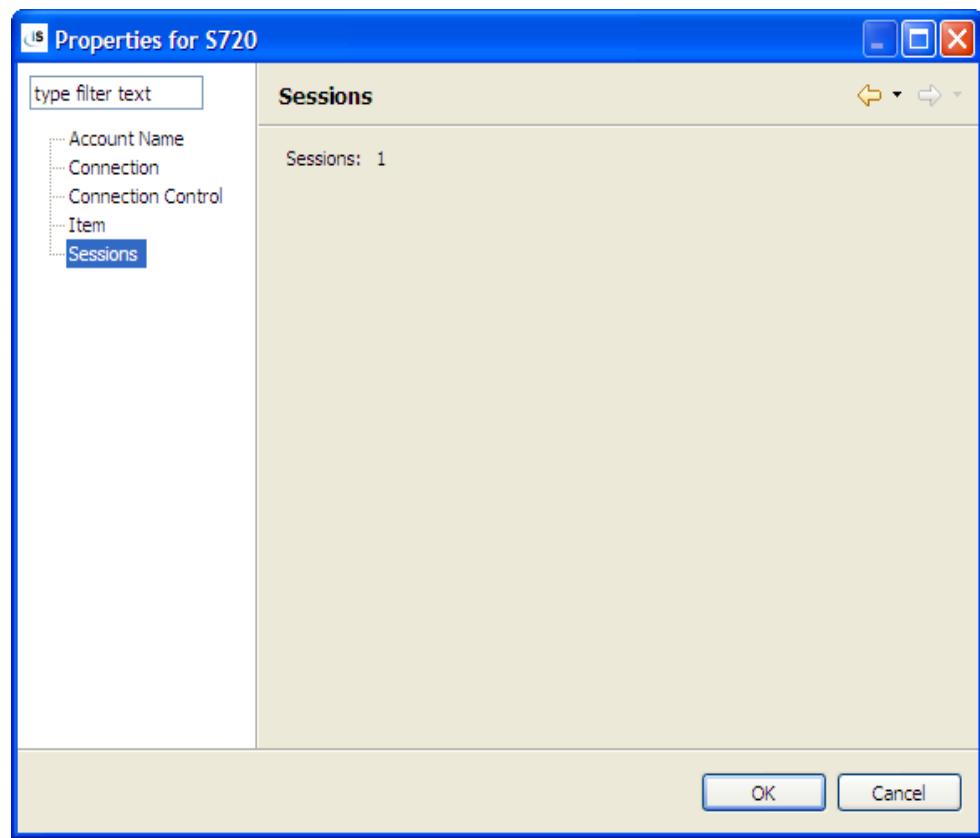
Delete Account

Deleting account will disconnect all sessions under this account.

NOTE: If a session has an unsaved data the user will receive a warning asking him to confirm the action.

Account Sessions

Select Sessions to view how many sessions are open for this account



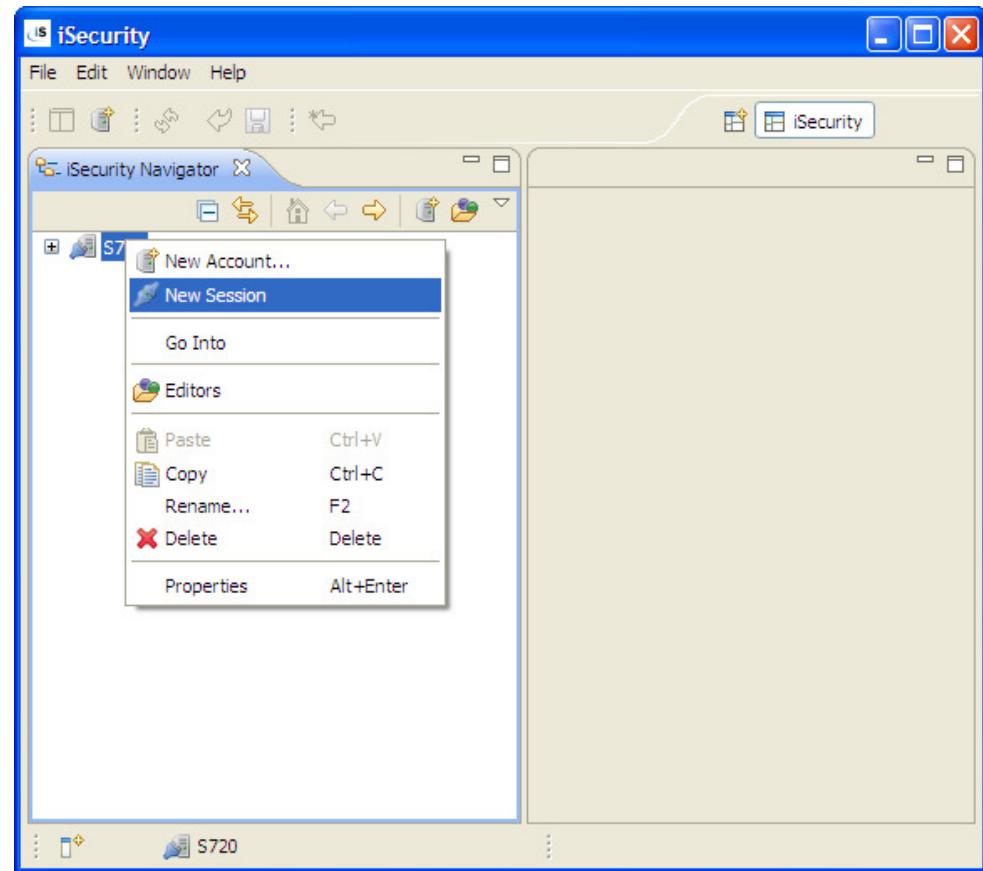
Sessions

Creating a New Session

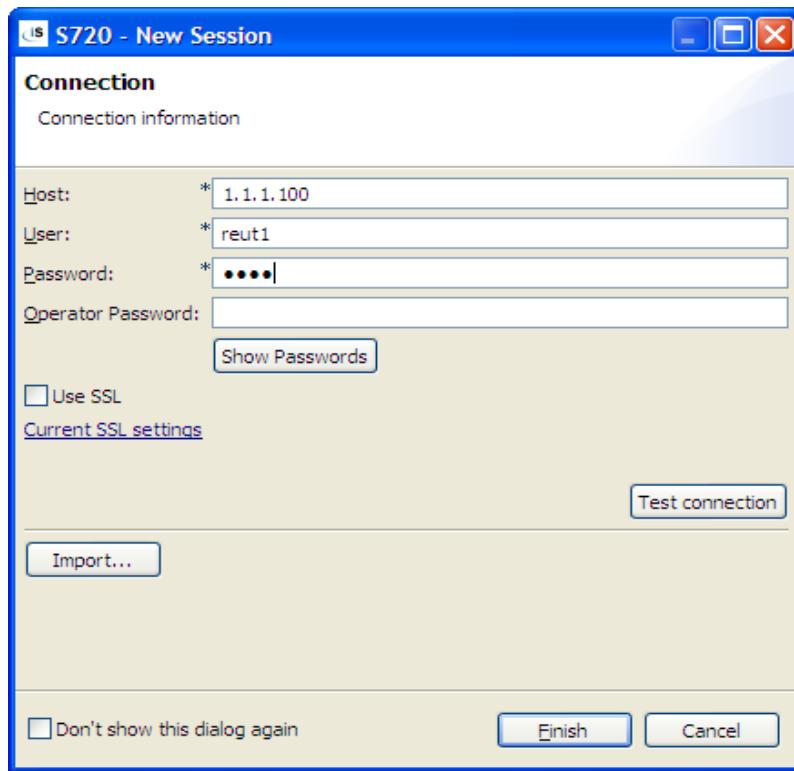
There are three options to create a new session based on the account's data:

- Right click the account and select **New Session**
- Double click the account (if it hasn't got sessions)
- Click on the node's handle (if it hasn't got sessions)

Creating a New Session



New Session



New Session Connection

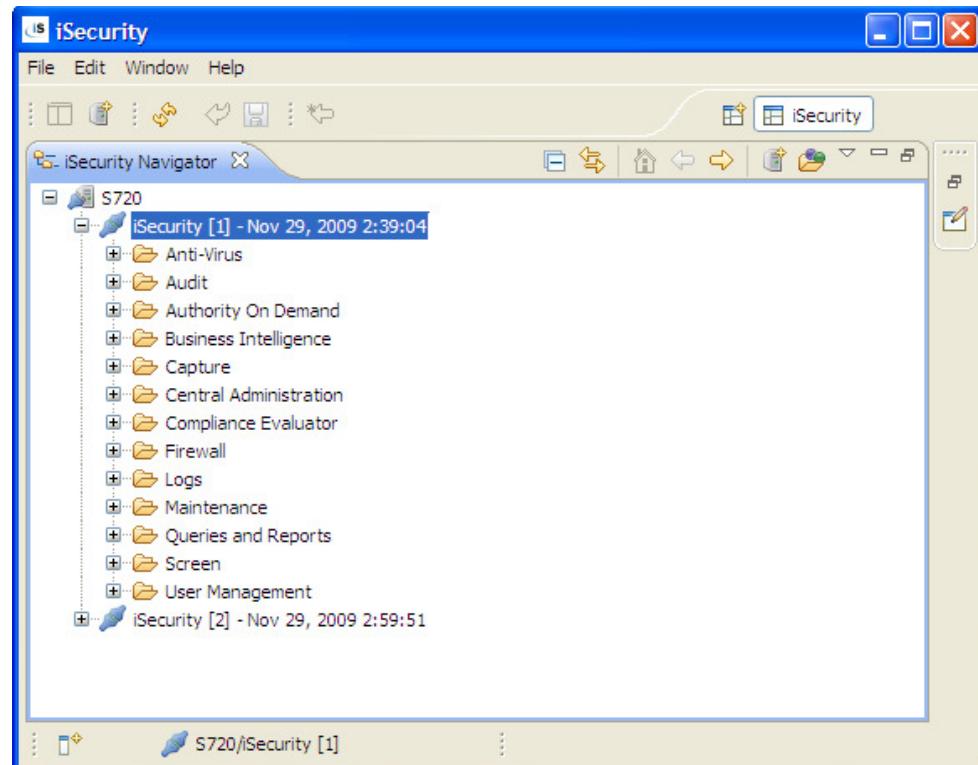
- Click **Import** to import a pre saved connection data upon creation of an account.
- Check the “**Don’t show this dialog box again**” to prevent prompting for new sessions of this account.

NOTE: Data supply in this step has no persistence on disc

Click **Finish** to connect to supplied host. Connection process runs in the background enabling the user to continue working.

A new session node added to the account along with the nodes of the application

Creating a New Session

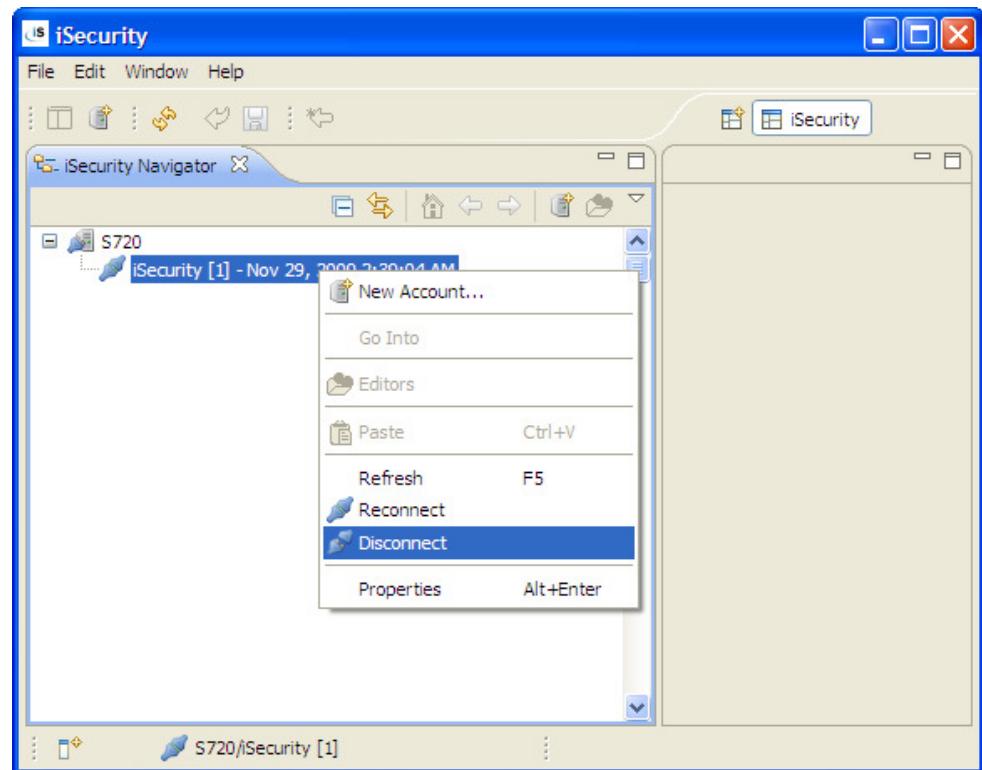


New Session Added

Multiple sessions can be added based on the same account or different under the same account. Multiple accounts can also be created.

Disconnecting a Session

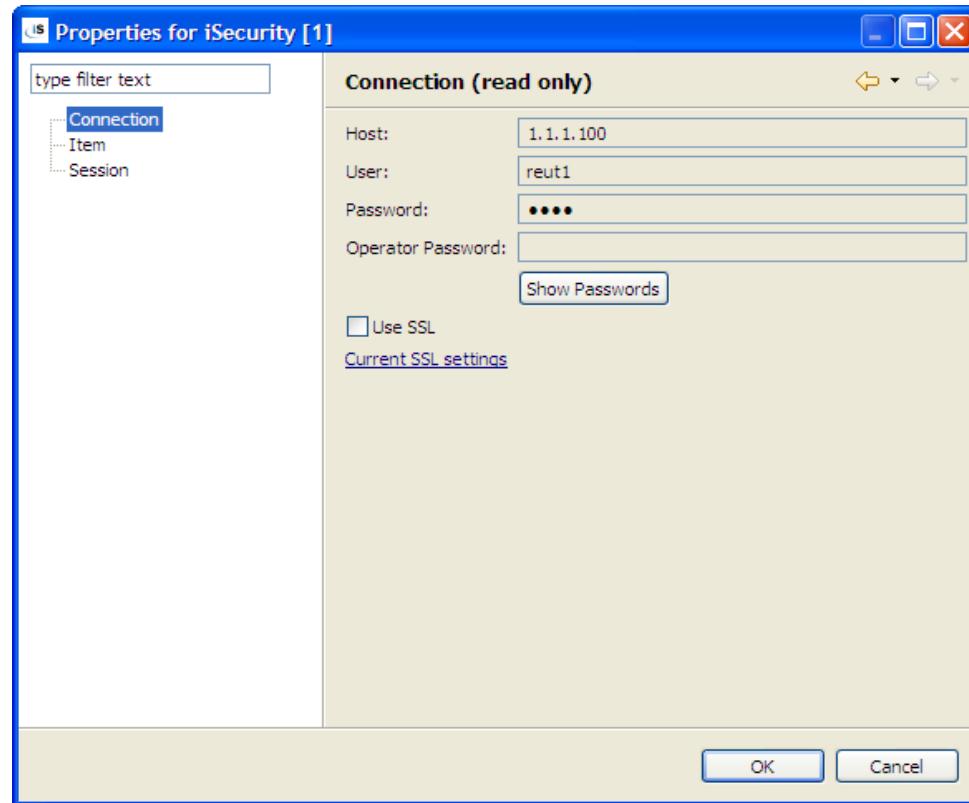
To disconnect from a session, right click on a session title or on multiple sessions and select **Disconnect**



Disconnect Session

Session Properties

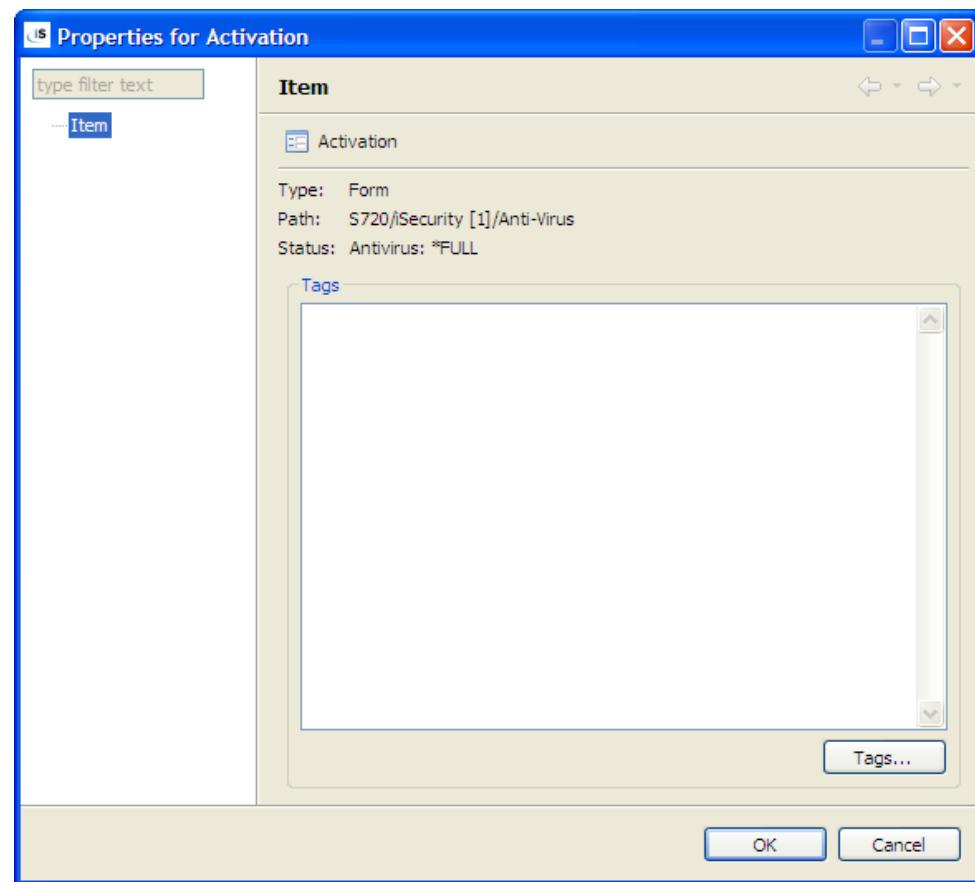
Session properties are read only information, the connection can not be modified.



Session Properties - Connection

Item

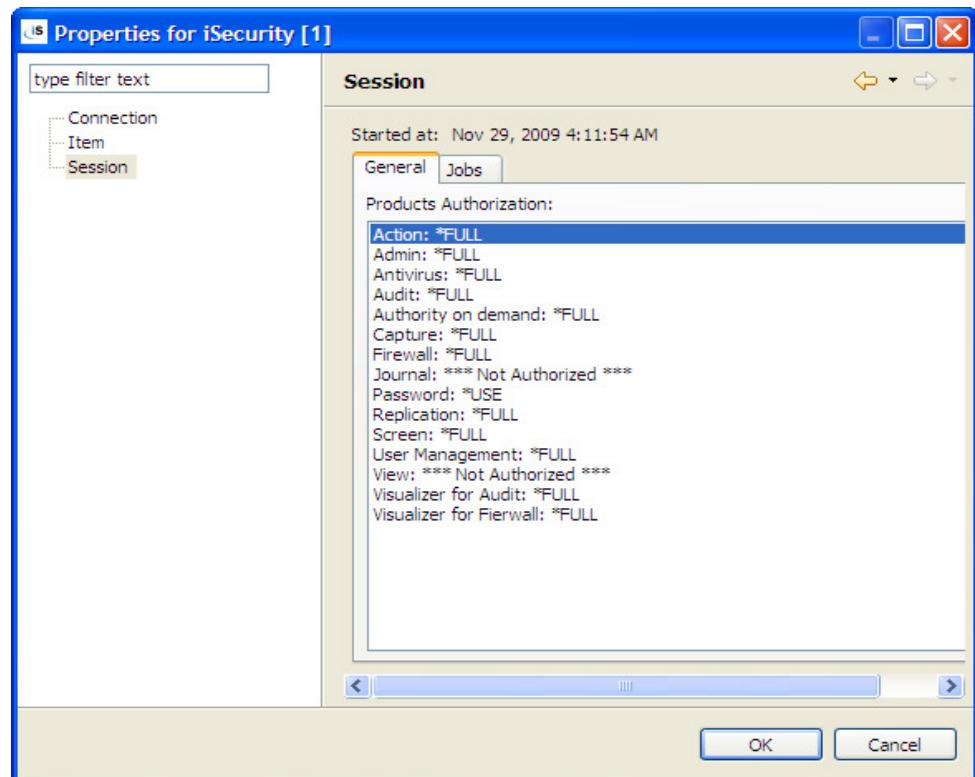
Display node authorization and tag it for easier search of the specific item in the GUI application. Add a new tag or assign an existing one.



Session

Session lists product's authorization level

Creating a New Session



Session Properties - Session

The Jobs tab lists session jobs

Restore the Navigator



Properties for iSecurity [1]

Session

Started at: Nov 29, 2009 4:11:54 AM

General Jobs

Number Name User Service

561133	QZDASOINIT	QUSER	Database
561138	QZRCSRVS	QUSER	Command

1/2 Refresh

OK Cancel

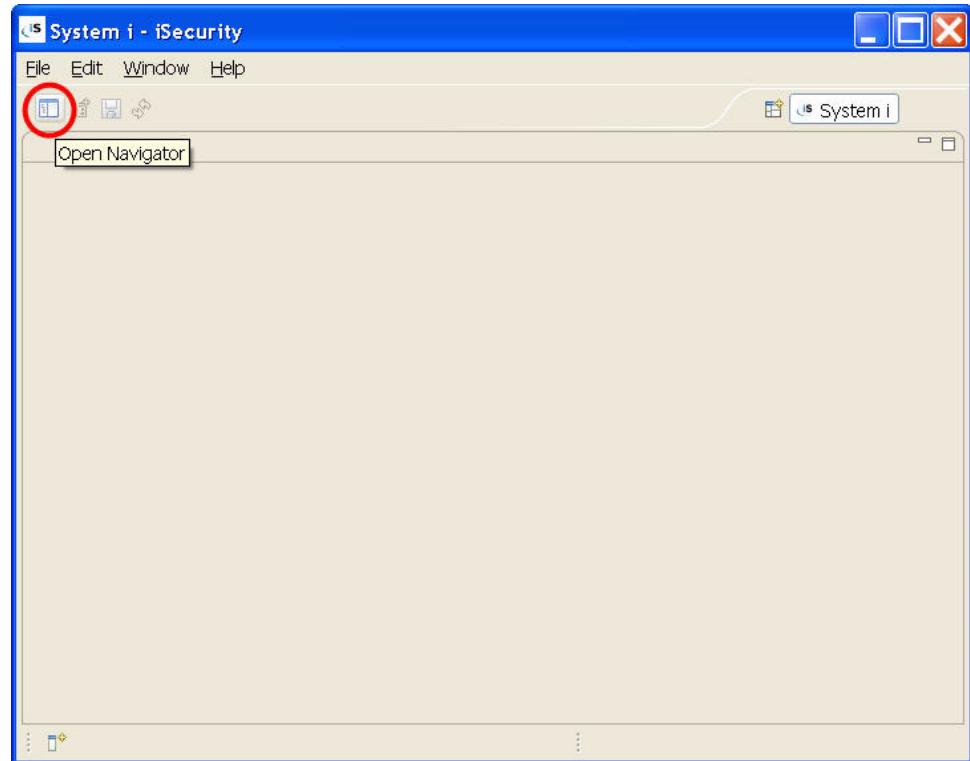
Session Properties - Jobs

Restore the Navigator

The navigator can easily restore its state after it's being disposed, by using the **Open Navigator** toolbar button



Application Password



Restore the Navigator

Application Password

Application password is separated from connection data, which resembles the native side. Upon requesting data from the server the user is prompted for iSecurity password. Empty password is of course an option based on the user profile the user signed in with.

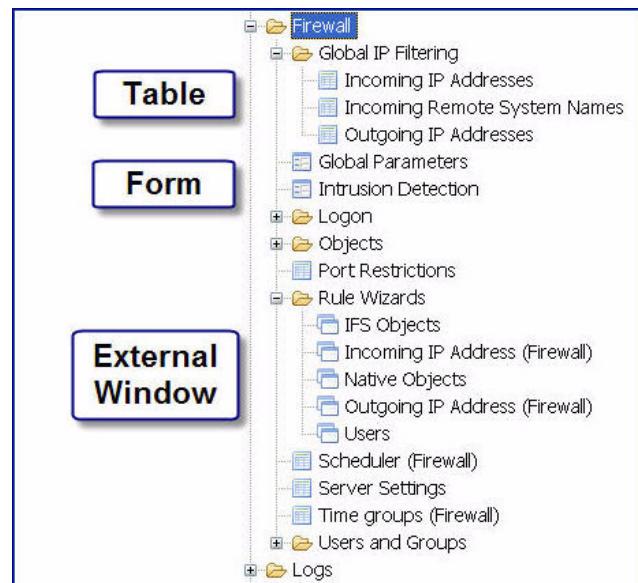


Enter iSecurity Password

NOTE: Unauthorized user will receive an error message

Screens and Editors

The navigator icons are differently designed according to what they display

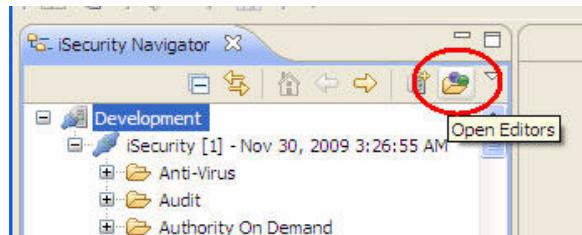


Screens and Editors



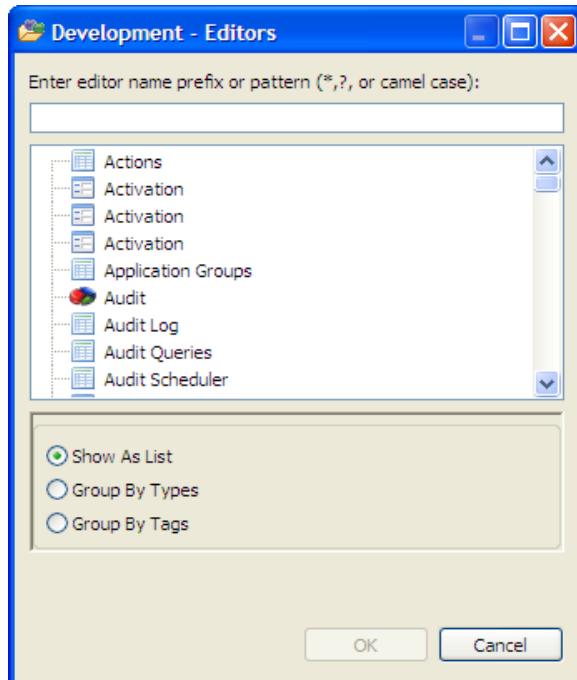
Editors

Click on “Open Editors” tool bar button to search editor name prefix or pattern



Open Editors

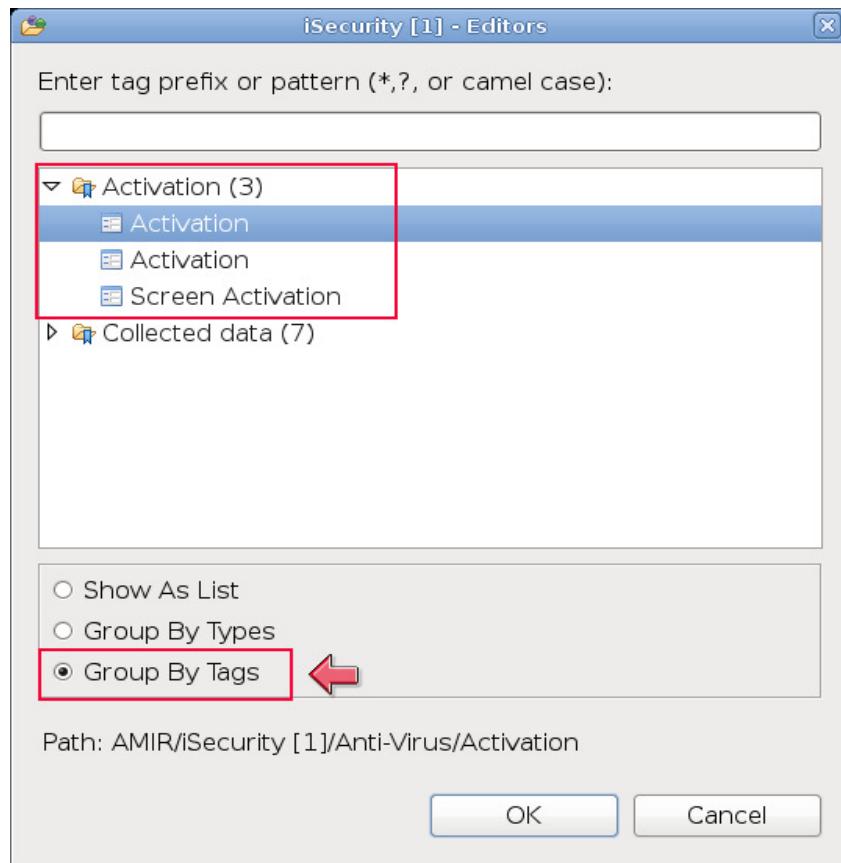
A list of editors appears in alphabetic order



Editors List

If **Group By Tags** is checked you can quickly activate selected editors.

This works also for multiple accounts/sessions

**Editors List - by Tags**

Nodes with filter

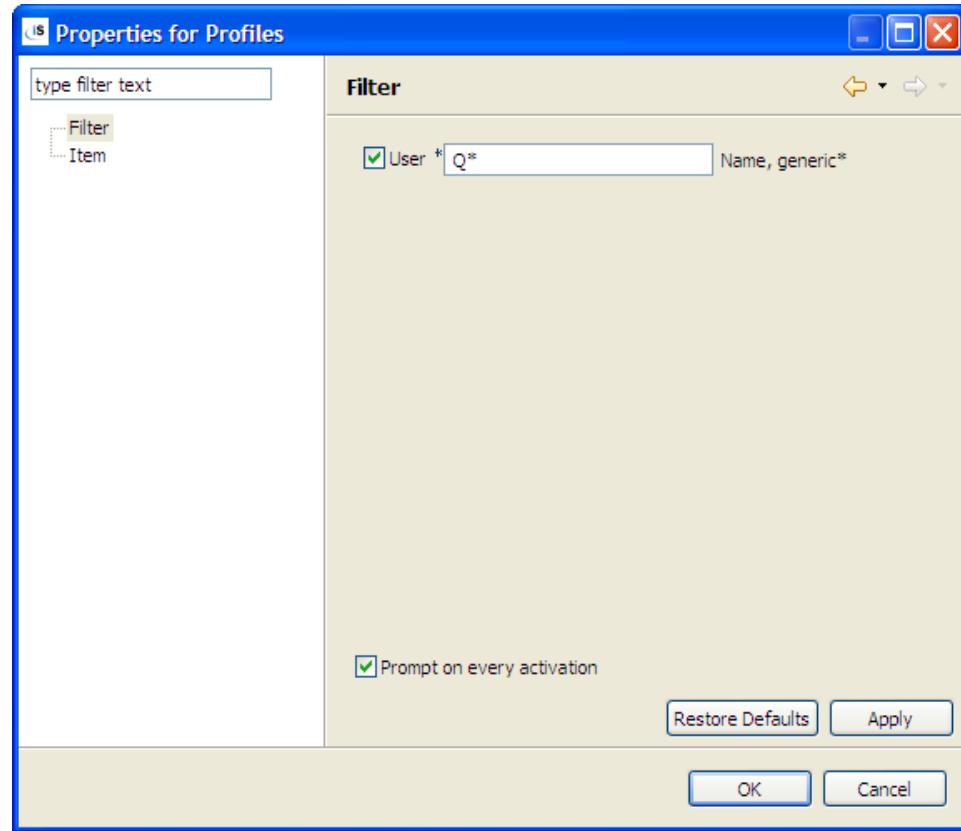
The following example use the **Profiles** node under **User Management**

To filter information, right-click the node, the properties dialog for **Profiles** displays, select **Filter**.

NOTE: *Changes done here will take place at the next attempt to open the editor or at the next attempt to refresh an already opened one.*



Updated new features and version



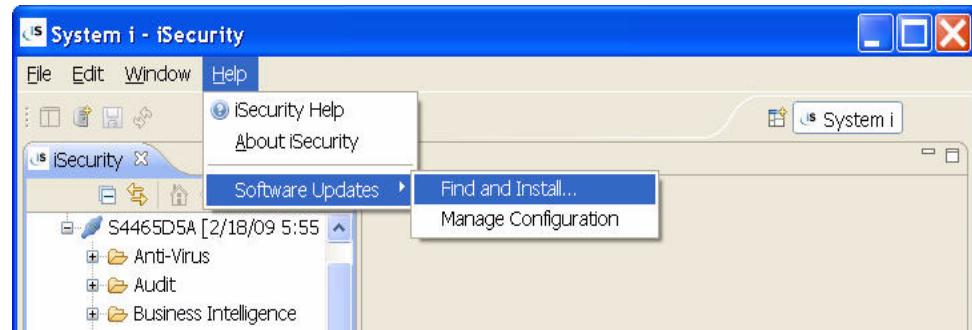
Properties Filter

The filter is accessible also via editor's pop up

Updated new features and version

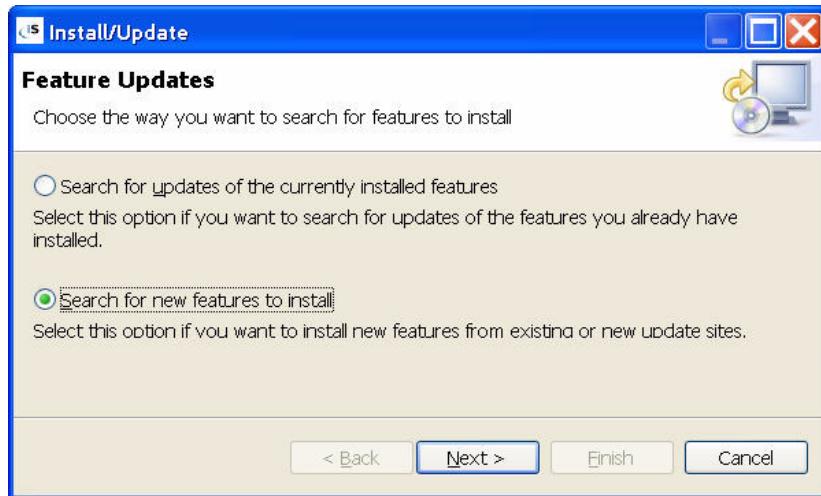
Updates and new releases are available through the GUI itself.

1. Go to **Help -> Software Updates -> Find and install...**



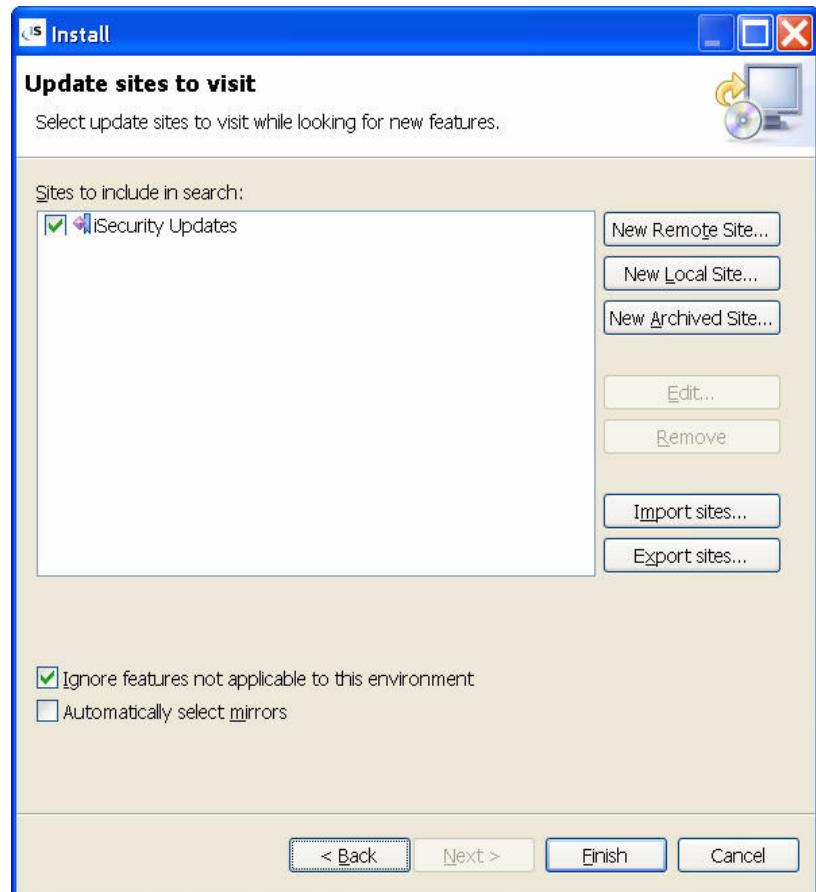
Find and install

2. Select **Search for new features to install** and press **Next**.



Feature Updates

3. Check iSecurity updates and click Finish



Update sites to visit

4. Check the features to install and click **Finish**



iSecurity Archived Update Site

If you don't have internet connection from the GUI, you can updated the application using a local update site.

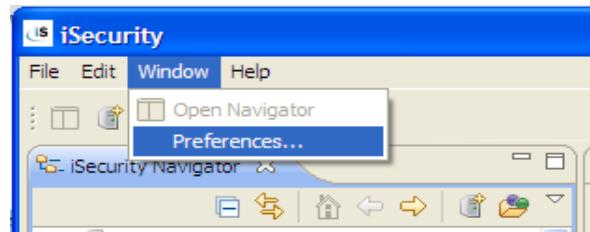
1. Ask for the new update zip file from your distributor and save it on your local disk.
2. Click **New Archived Site**
3. A "Select file" dialog will open, point it to the location of the zip file supplied to you.
4. On the "Edit Local Site" dialog click **OK**.

Reporting problems in iSecurity GUI

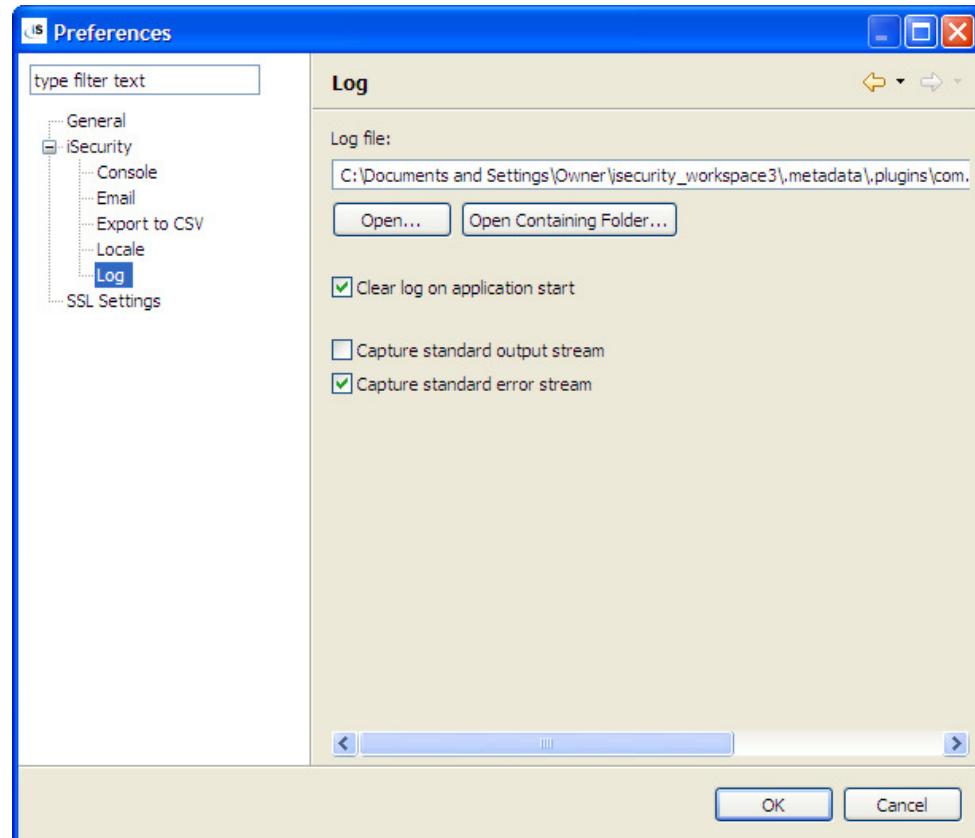
The iSecurity GUI module writes output to a log file. By default, problems are written to the log file which should be e-mailed to support@razlee.com .

Log Preferences window

Open the Preferences dialog from iSecurity's menu bar



Click on the Log node



Preferences

NOTE: Changes made on this screen take effect after iSecurity is restarted. By default, the log file is cleared when iSecurity starts and only errors are printed to it.

You may be asked by the Raz-Lee Technical Support team to check the “Capture standard output stream” box, re-create the error, and then re-send the log file to support@razlee.com.

Parameter	Description
Open	Opens the log file using the default text editor



Parameter	Description
Open Containing Folder	Useful if you wish to send the file as an attachment
Browse	Set a different log file location and name

Editors

Most editors, whether forms or tables, have an internal tool bar which also shows load status

*Intrusion Detection

S720/iSecurity [1]/Firewall/Intrusion Detection (Firewall: *FULL)

Intrusion Detection

Detected Intrusion

End the offending interactive session
 Send message to the user
 Disable user
[Prevent specific users from being disabled automatically.](#)
 Send email to Security Administrator
 Email: TZION@RAZLEE.COM

Run Action (If Action is installed):

Write to QAUDJRN (security audit journal)
 Audit journal code is U. Journal entry type is FW. Data format: SMZ8/GSCALP.

Message Queue

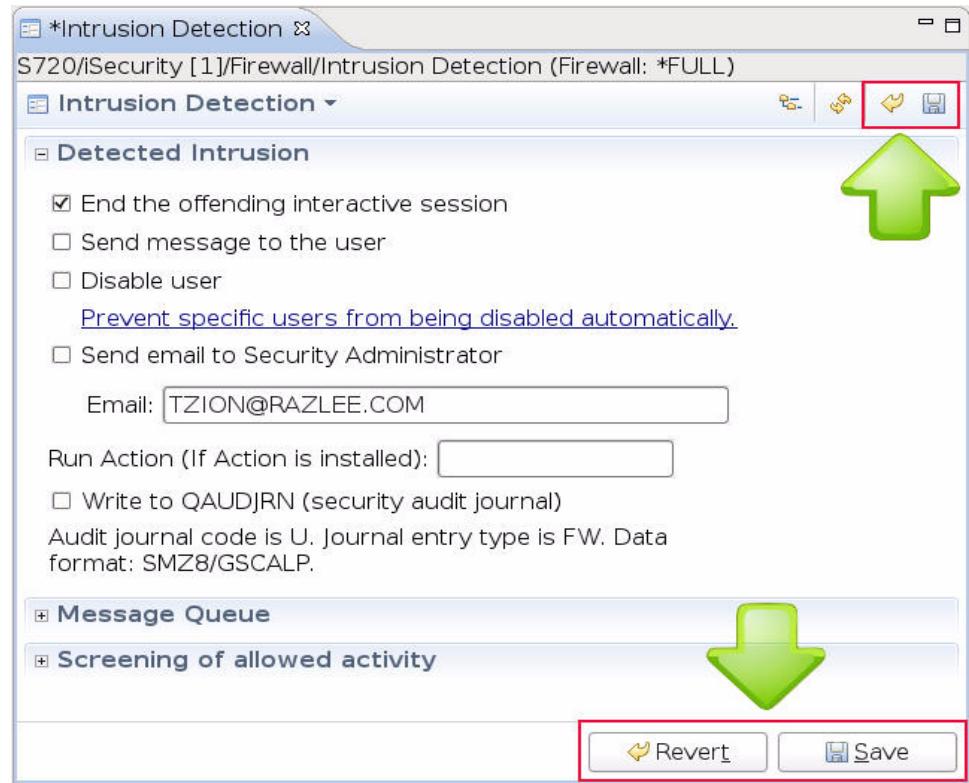
Screening of allowed activity

Revert Save

Editor Tool Bar

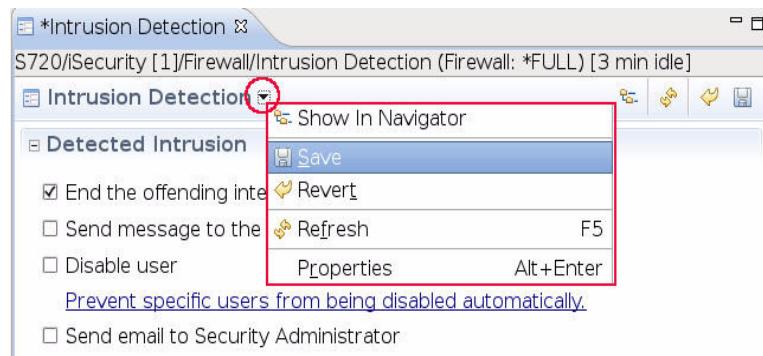
Every form has Save/Revert actions

Editors



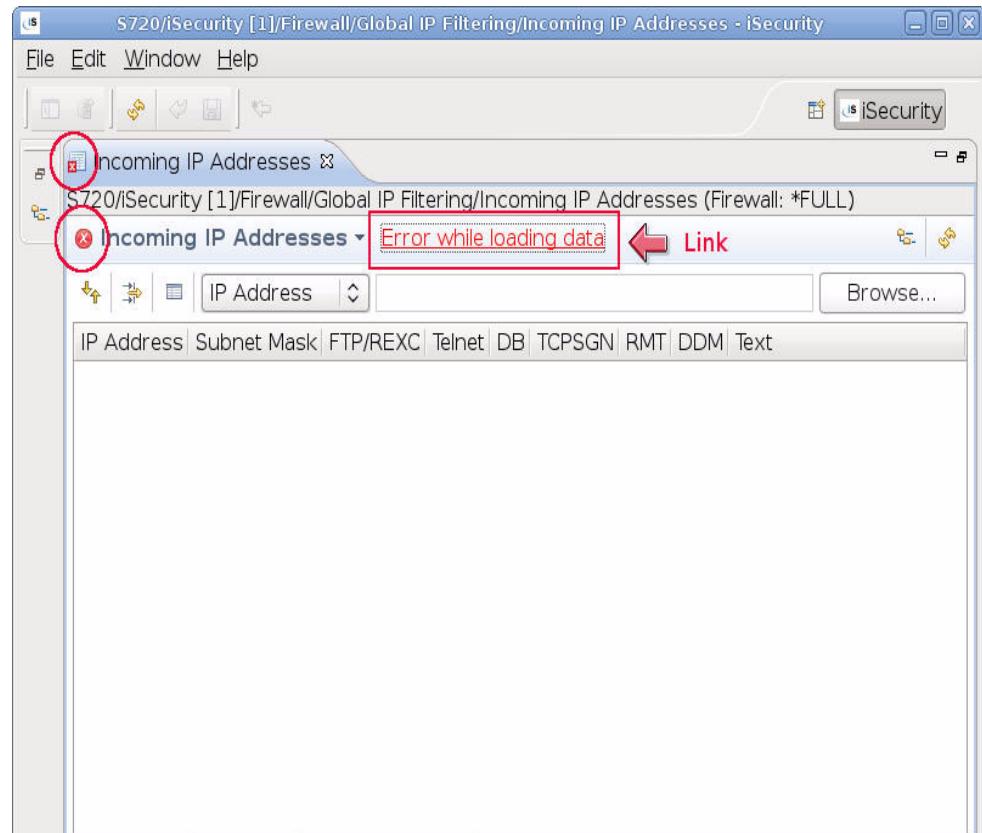
Revert/Save

Editor's actions are available also via a pop up





Error messages as link



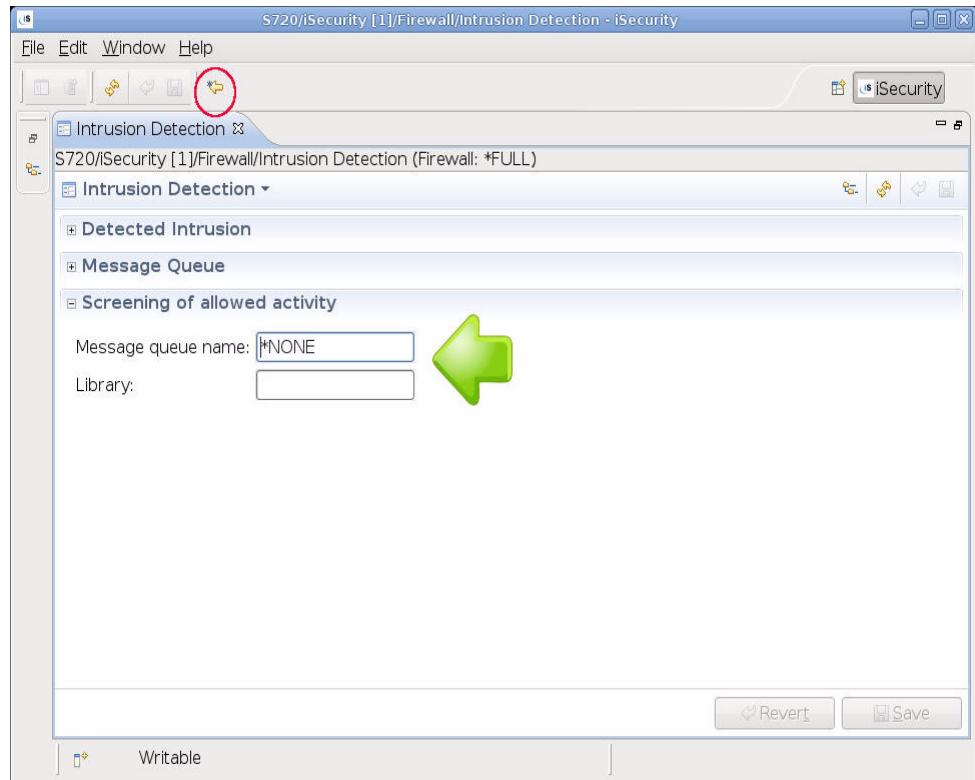
Error messages as link

Clicking the link to display error message.

Last Modified Editor

Last Modified Editor will activate the last form that has changed

Editors



Last Modified Editor

Editor Display

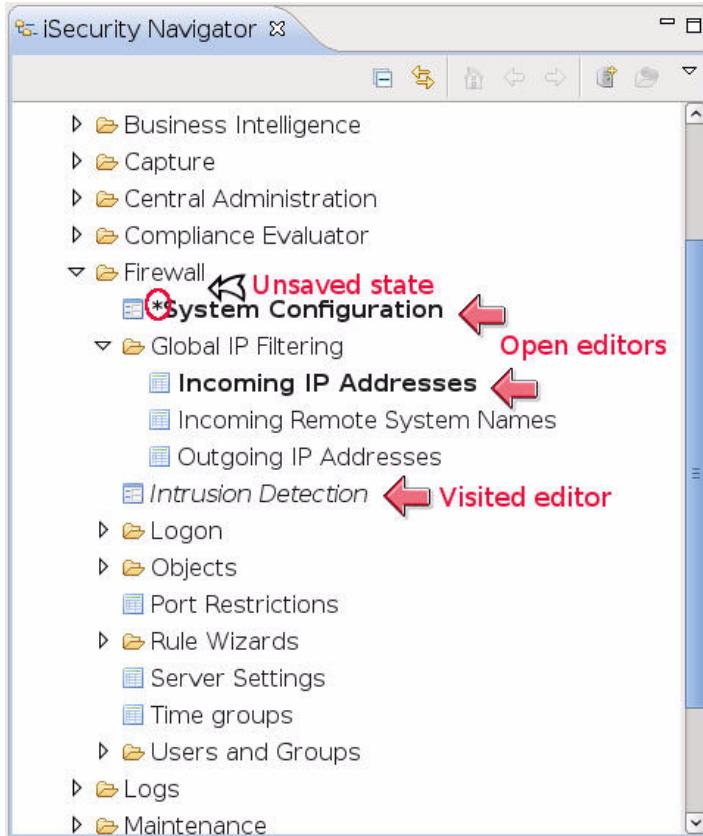
Editor displays product name, authorization information and idle time



S720/iSecurity [1]/Firewall/Global IP Filtering/Incoming IP Addresses (Firewall: *FULL) [44 min idle]								
Incoming IP Addresses ▾								
		IP Address		Browse...				
IP Address	Subnet Mask	FTP/REXC	Telnet	DB	TCPSGN	RMT	DDM	Text
*ALL	0.0.0.0	No	Yes	No	No	No	No	*ALL
1.1.1.144	255.255.255.255	Yes	No	No	No	Yes	Yes	
1.1.1.166	255.255.255.255	Yes	Yes	Yes	Yes	Yes	Yes	
1.9.5.8	255.255.255.0	No	No	No	Yes	No	SSL Only	
2.2.2.2	255.255.255.240	No	No	No	No	No	No	
2.2.2.2	255.255.255.255	No	Yes	No	No	No	Yes	

Editor display**Open editor display**

Open editors have special rendering in the Navigator View and appears in Italics.



Open Editors Display in Navigator View

Editor Filter

All editors have a built in filter that also suggest filter criteria

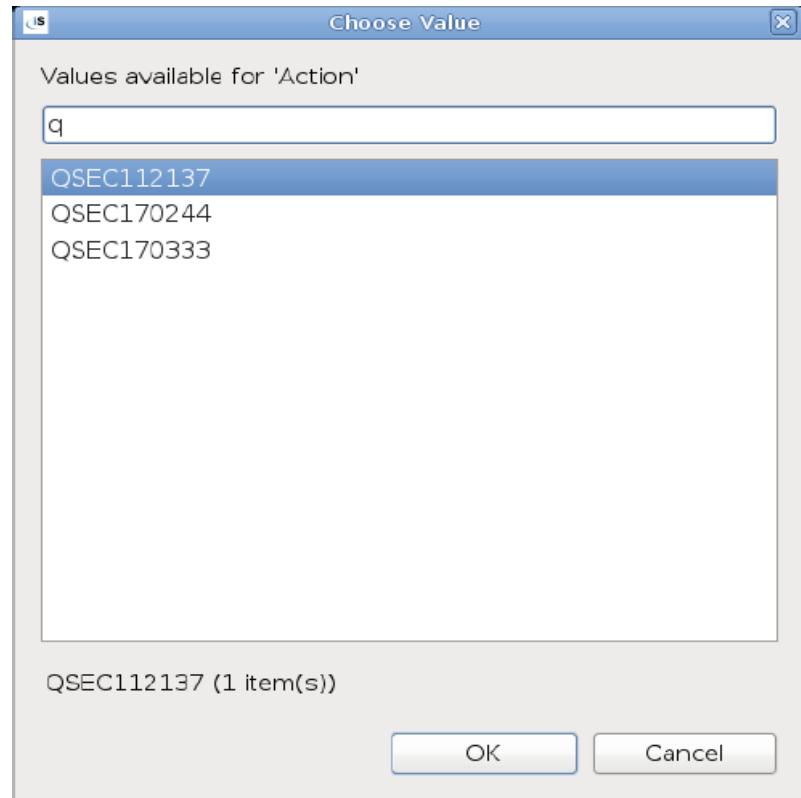


Editor Filter

Click Browse to open the suggestions dialog box based on the input



Rule Wizards



Suggestions Dialog

Rule Wizards

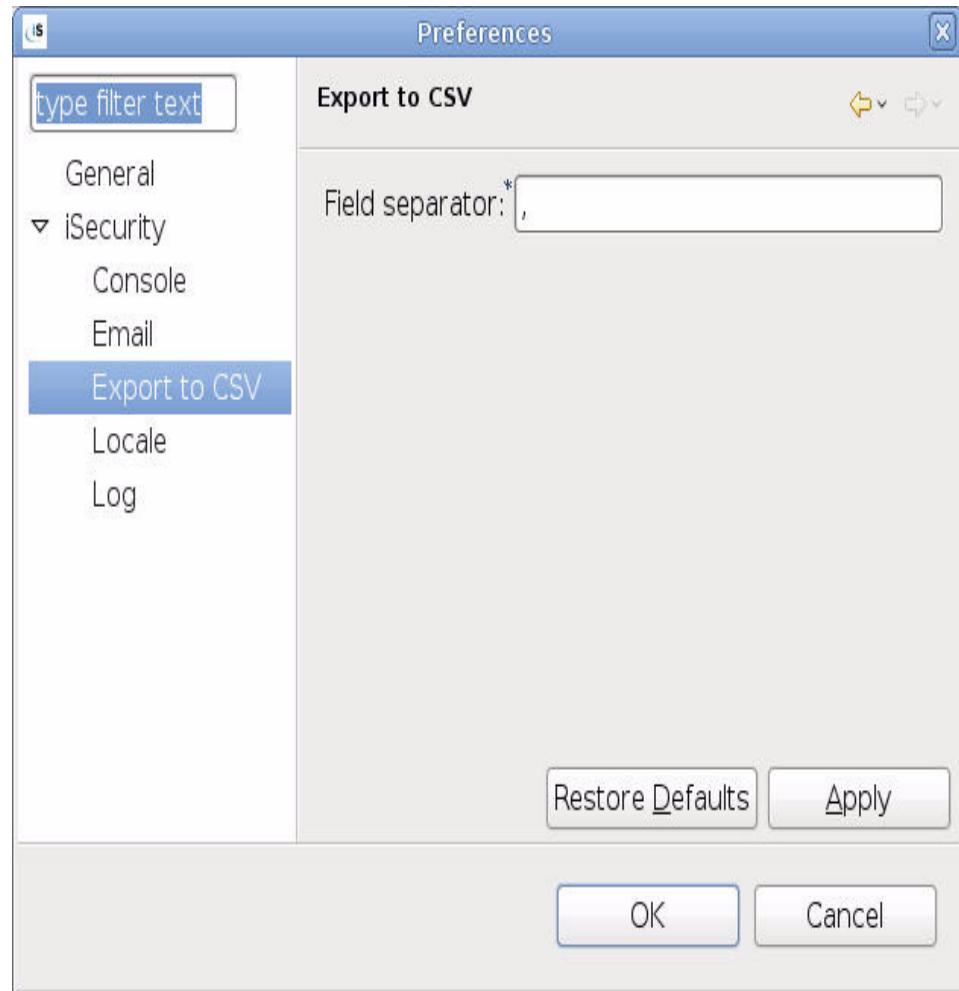
Every rule wizard has a Data set configuration button

**Data set configuration**

The command prompter for data set configuration



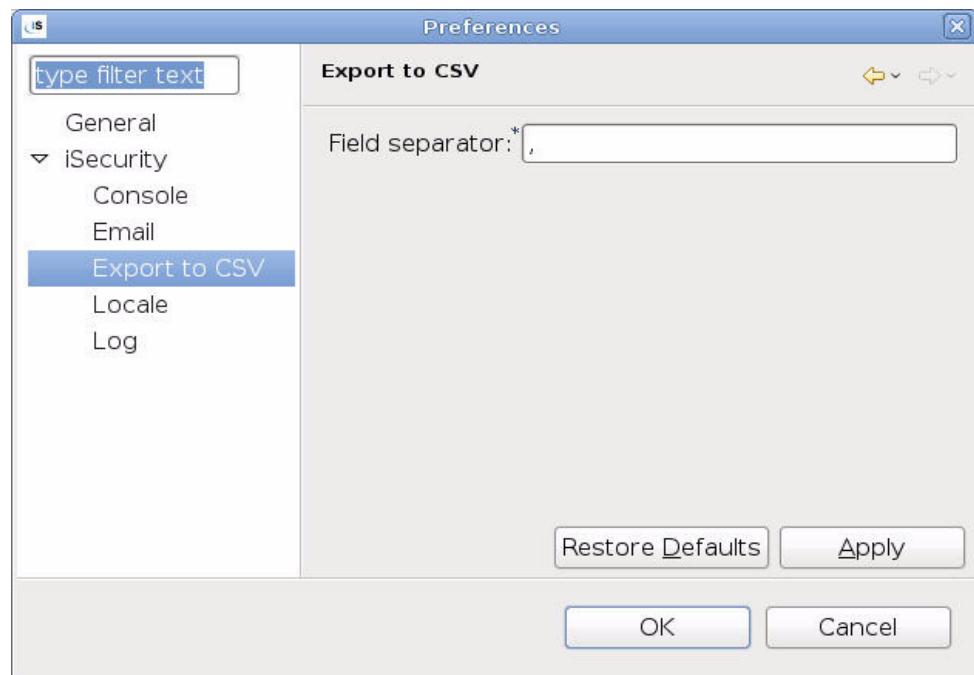
Preferences



command prompter

Preferences

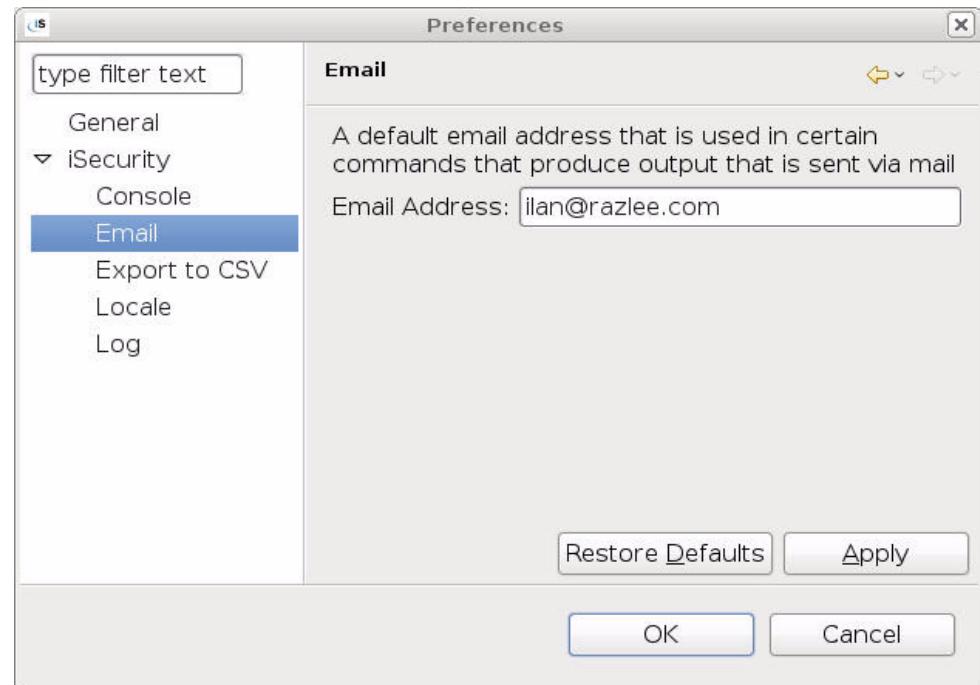
Setting field separator for CSV outputs (used in the logs)

**Field Separator for CSV**

A default E-mail address to be used in queries, compliance and scheduler



Preferences



Default E-mail Address

Capture GUI

Capture

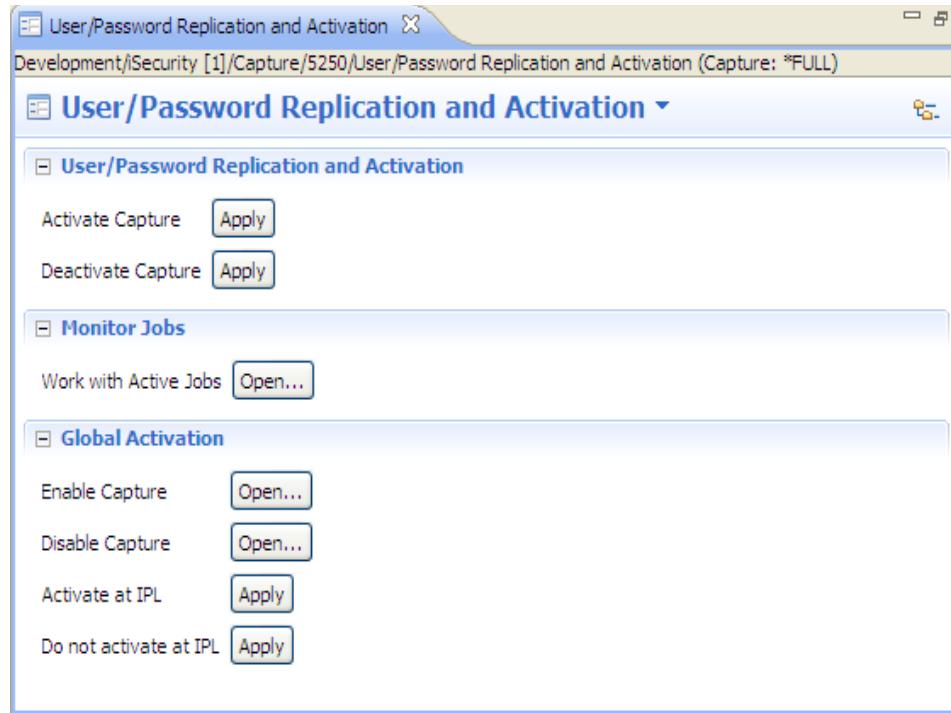
iSecurity GUI recognize if **Capture** is installed as a stand alone product on the native side and verify authority as such. **Capture** also display DBCS screens (Asian languages' characters).

Activating Capture

Capture monitor must be activated in order to enable the automatic capture features. It is strongly recommended that you configure **Capture** to activate automatically each time an IPL occurs on your System i.

Capture activation can be done from the native version of the product on the System i or from the GUI.

To activate from the GUI, select the **User/Password Replication and Activation** node under the 5250.



User/password Replication and Activation

Manual Activation

- To manually activate the **Capture** monitor, click **Apply** at **Activate Capture**.
- To manually de-activate the **Capture** monitor, click **Apply** at **Deactivate Capture**.

Automatic Activation

- To activate Capture automatically each time an IPL occurs, click **Apply** at **Activate at IPL** from the Global Activation menu.
- To cancel automatic activation, click **Apply** at **Do Not Activate at IPL**.

Verifying that the Capture Monitor is Active

Click Open at **Work With Active Jobs** to view the **Capture** monitor subsystem. The **Active Monitor Jobs** screen appears. It should display several active jobs similar to those on the screenshot below.



Active Monitor Jobs					
Job	User	Number	Type	Status	
AUCAP#SR.1	SECURITY2P	129601	A	*ACTIVE	
AUCAP#SR.2	SECURITY2P	129602	A	*ACTIVE	
AUCAP#SR.3	SECURITY2P	129603	A	*ACTIVE	
AUCAP#SR.4	SECURITY2P	129604	A	*ACTIVE	

Active Monitor Jobs

Enable/Disable Capture

- Click **Open** at **Enable Capture** to activate **Capture** monitor according to interactive subsystem
- Click **Open** at **Disable Capture** to deactivate **Capture** monitor according to interactive subsystem

The dialog box has a title bar "Product Activation Default (AUINITDFT)". The menu bar includes File, Edit, View, Help. The main area contains three dropdown menus:

- Interactive subsystem: QINTER
- Library: *LIBL
- Product to activate: *ALL

At the bottom are buttons for OK, Cancel, Help, and ?.

Enable Interactive Subsystem

Capture Rules

Capture uses rules to initiate sessions capturing automatically according to one or more trigger criteria covering different situations. Additionally, you can also use **Action** rules to trigger capture sessions based on events detected by other iSecurity components, such as **Audit** and **Firewall**. For more details see the *Capture User Manual*.



Capture Rules

1. Select **Capture Rules** node under 5250. The **Capture Rules** screen appears.

The screenshot shows a software interface titled "Capture Rules". The title bar includes the path "Development/Security [1]/Capture/5250/Capture Rules (Capture: *FULL)". Below the title bar is a toolbar with icons for up, down, left, right, and search, followed by a "Sequence" dropdown set to "Sequence" and a "Browse..." button. The main area is a table titled "Capture Rules" with columns: Sequence, IP Range, IP Address, Time Group Range, Time Group, User Name, Job Name, and Subsystem. A single row is present in the table, with values: Sequence 100, IP Range Out, IP Address Out, and all other columns empty. At the bottom of the table are navigation buttons (left, right, first, last) and a page number indicator "1/1". Below the table are three buttons: "Copy...", "Add...", and "Delete".

Capture Rules

2. Click **Add** to add a new rule. The **Add Rule** screen appears.



Add Rule

Sequence: 10

Description:

Selection Criteria

IP Address: []

In Out

Time group: []

In Out

Job (Terminal Id): [] generic*

User/Special Authority: [] generic*

Subsystem: [] generic*

Rule is valid until: Feb 23, 2009

Process

Capture (copy screen) Log CL program commands

Add Rule

3. Select '10' in the **Sequence** field to cause this rule to be executed first.
4. Type descriptive text in the **Description** field.
5. Type '*ALL' in the **IP Address** field. This indicates that the rule applies to all incoming addresses.
6. Type '0.0.0.0' in the **Subnet Mask** field. The subnet mask is required even though the rule applies to all IP addresses.
7. Check the **Time Group** check box to apply a time group criteria.
8. Type a job name at the **Job (Terminal ID)** feild to apply the rule only to this job.

Capture Data



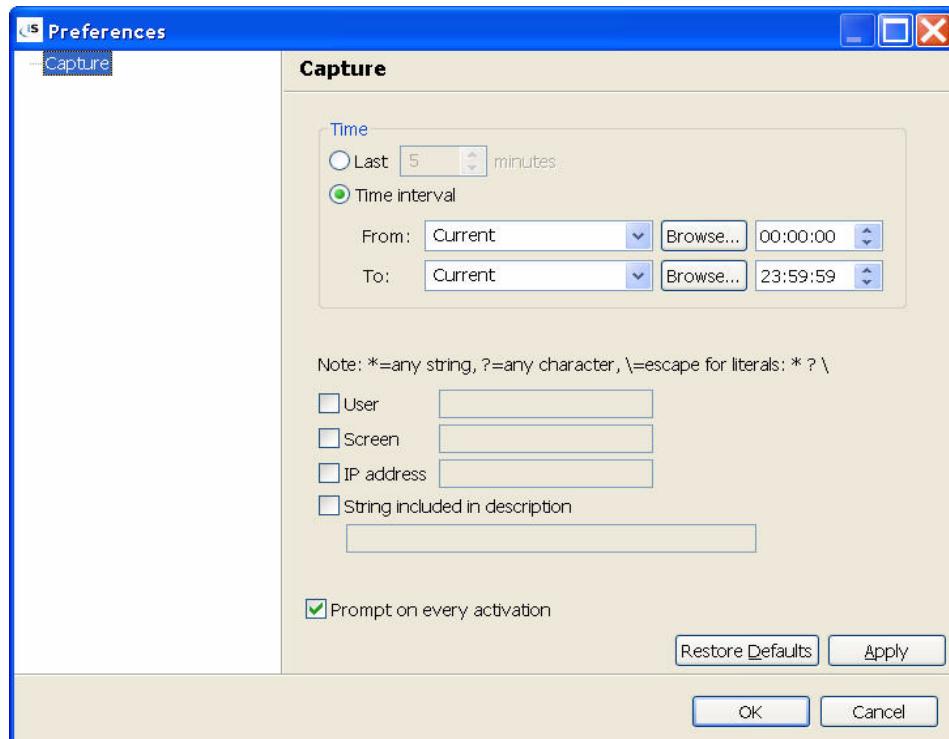
9. Type a user profile, a group or a special authority in the **User/Special Authority** field. This causes the rule to apply only to this user profile.
10. Type a subsystem name at the **Subsystem** feild to apply the rule at.
11. Select a date for the rule to void at the **Rule Valid Until feild**.
12. Check the **Log CL program commands** to record job log and CL program commands. This changes the job attributes to LOGCLPGM(*YES) and causes Screen to save screens, the job log and the CL command log for this user .
13. Click **OK** to save the rule.

Capture rules will start recoding on the user's next signon.

Capture Data

Captured screens can be viewed at any time after a capture session begins.

1. To display the captured screens in the GUI environment, click **Capture Data** node under 5250. The **Preferences** screen appears. This screen allows you to filter and display only those capture sessions that you wish view.



Preferences

Capture HTTP



Capture Data

2. Select a job to view it's captured screens and click **Open**

Capture HTTP

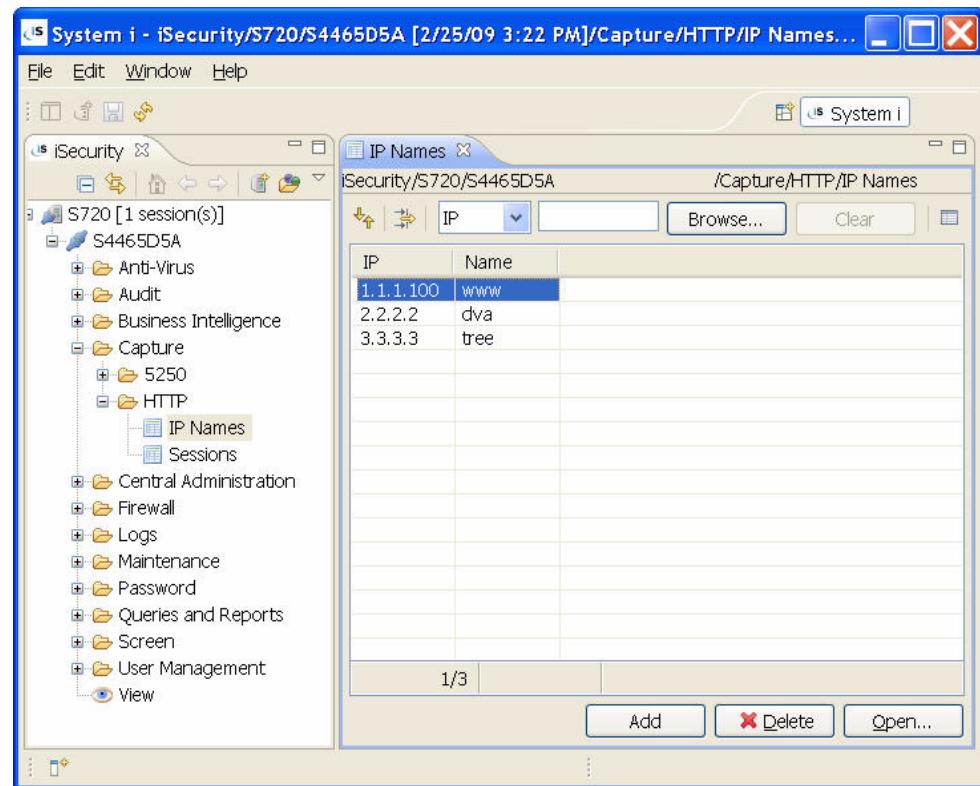
Capture HTTP will enable to capture the screen activity directly from a specific IP address, one or more, but always the IP address has to be known in advance.

The users' activity that can be monitored is the access from specific addresses. The module directs the users to an IP address in the local network.

This is top exclude web facing sessions as well as S/36 MRT (very old programming method in which one job controls several terminals).

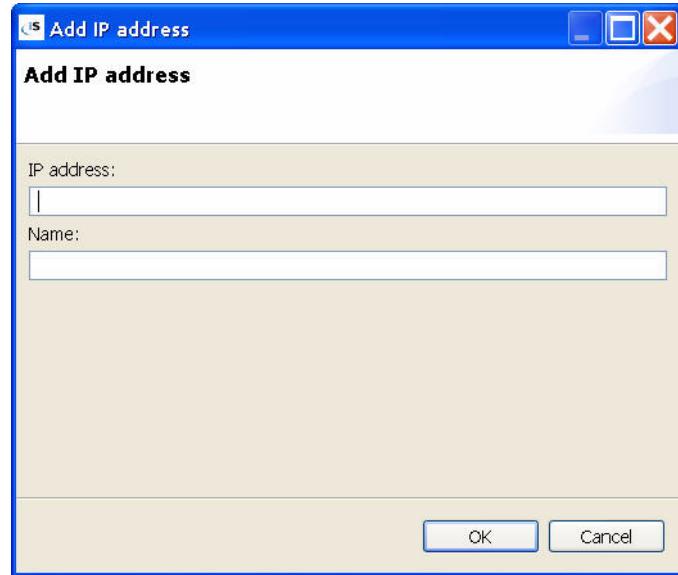
IP Names

1. Click **IP Names** under the HTTP node. The **IP Names** screen appears.



IP Names

2. Click **Add** to add a new IP name. The **Add IP address** screen appears

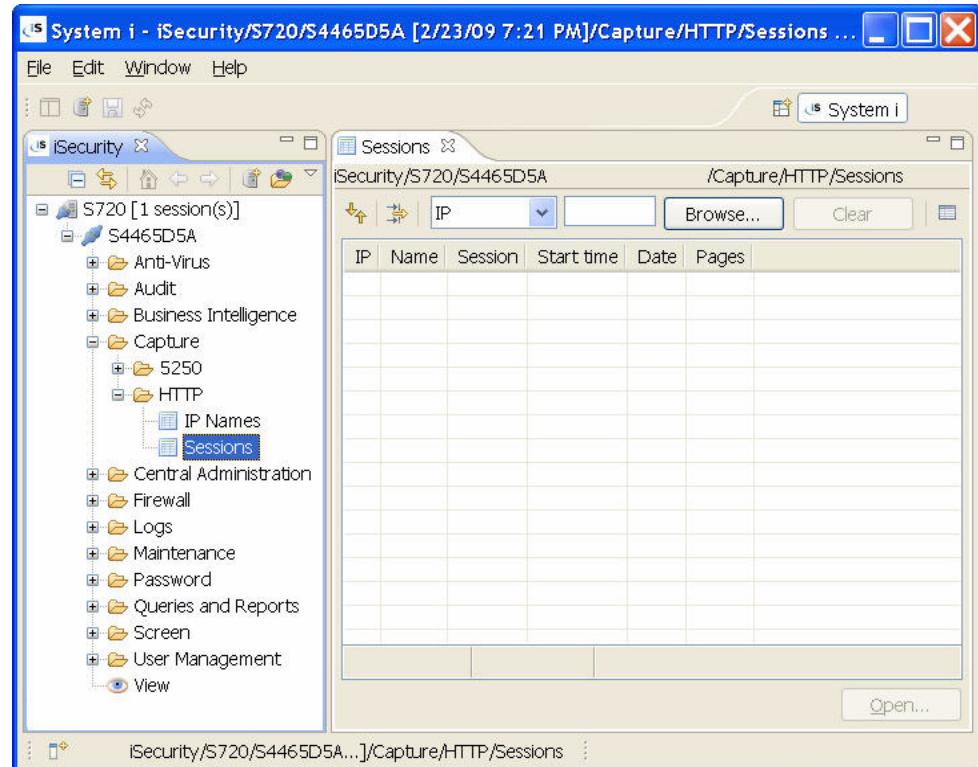


Add IP address

3. Add IP address and a descriptive name and click **OK**.
1. Select **Sessions** node under HTTP. The **Sessions** screen appear.

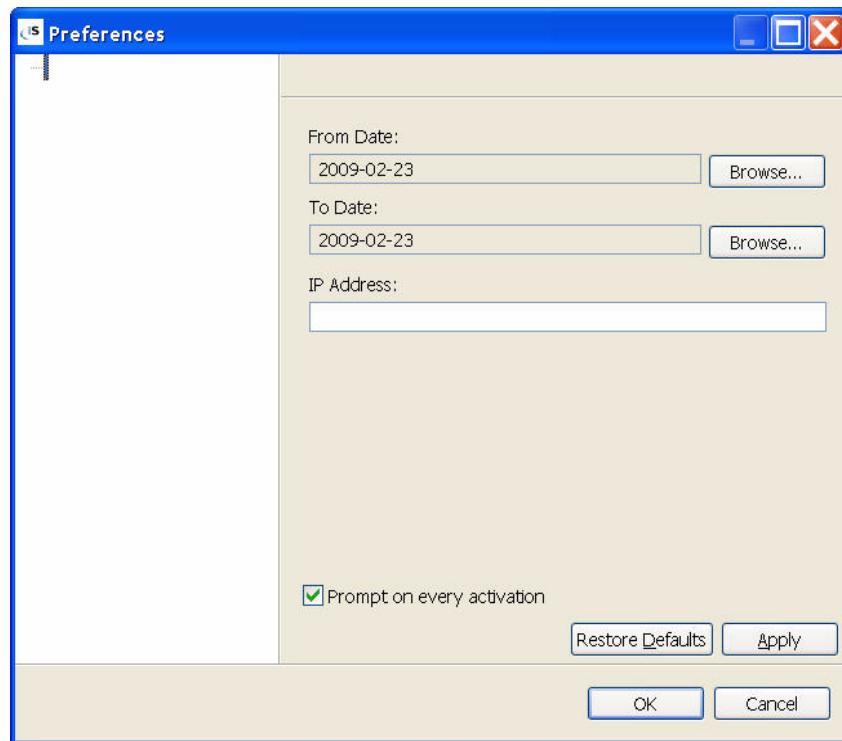
Sessions

Sessions

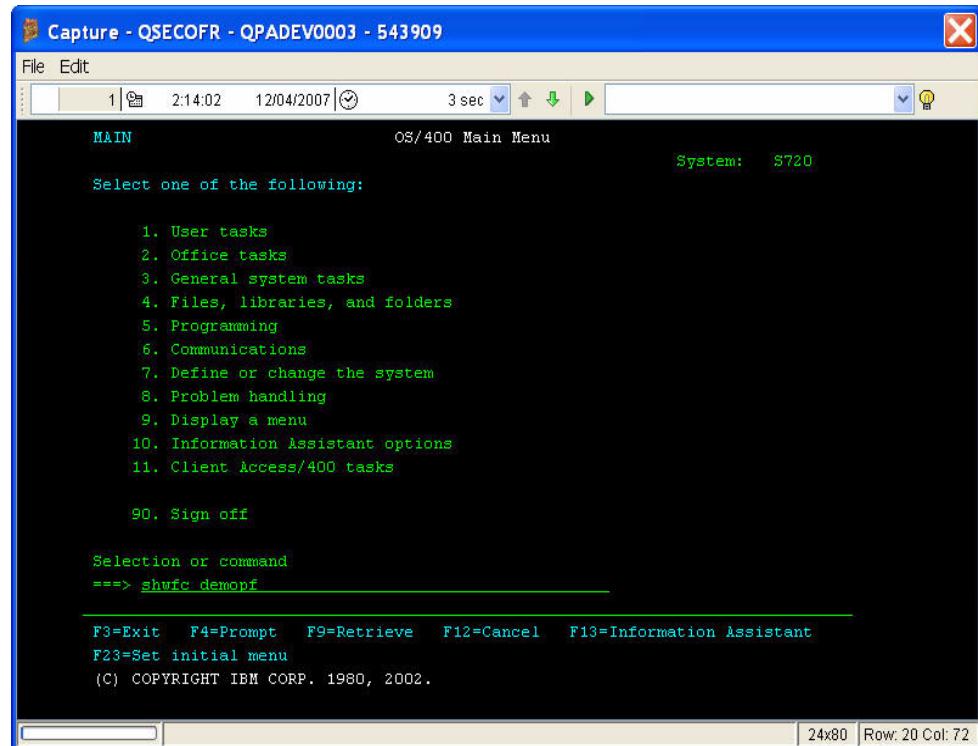


Sessions

2. Click **Open**. The **Preferences** screen appears

**Preferences**

Sessions



Captured Frame

1. Click **File > Save as** to save the frame as .JPG file
2. Use the arrows to move back and forward in frames.
3. Click to display the captured frame in a slide show according to the time span the user viewed them.
4. Click to highlight words and lines in the screen.

Maintenance



Chapter 4: Maintenance

Collected Data

Administrators can view summaries of **Action**, **Audit**, **Capture**, and **Firewall** journal contents by day, showing the number of entries for each day together with the amount of disk space occupied. Administrators can optionally delete records for individual days in order to conserve disk space.

The following screen capture provides an example.

The screenshot shows a software window titled "Collected data". The title bar also includes the path "Development/Security [1]/Maintenance/Audit/Collected data (Admin: *FULL) [2 min idle]" and the status "2 min idle". Below the title bar is a toolbar with icons for search, refresh, and browse. A dropdown menu labeled "Collected Date" is open, showing options for "Collected Date" and "Browse...". The main area is a table with the following data:

Collected Date	Records	Size (MB)	Save Date
Dec 6, 2009	140566	128.0	Dec 13, 2009 8:20:41 PM
Dec 7, 2009	150466	134.3	Dec 13, 2009 8:20:41 PM
Dec 8, 2009	40440	17.9	Dec 13, 2009 8:20:41 PM
Dec 9, 2009	18503	9.5	Dec 13, 2009 8:20:41 PM
Dec 10, 2009	20382	9.5	Dec 13, 2009 8:20:41 PM
Dec 11, 2009	1082	.6	Dec 13, 2009 8:20:41 PM
Dec 12, 2009	836	.8	Dec 13, 2009 8:20:41 PM
Dec 13, 2009	20160	9.5	Dec 13, 2009 8:20:41 PM
Dec 14, 2009	23348	14.7	

At the bottom left is a page navigation bar showing "1/9". At the bottom right is a "Delete" button with a red X icon.

Collected Data

Options/Parameters	Description
Collected date	Date that entries were made
Records	Number of records for that day
Size	Size of data (mb)



Options/Parameters	Description
Save Date	Date that entries were saved
Delete	Delete data

Setup *PRINT1- *PRINT9

Firewall and **Audit** allows you to define up to nine specific printers to which you can send printed output. These may be local or remote printers. ***PRINT1-*PRINT9** are special values which you can enter in the **OUTPUT** parameter of any commands or options that support printed output.

Output to one of the nine remote printers is directed to a special output queue specified on the ***PRINT1-*PRINT9 User Parameters** screen (see accompanying procedure), which, in turn, directs the output to a print queue on the remote system. You use the **CHGOUTQ** command in the native system to specify the IP address of the designated remote location and the name of the remote output queue.

By default, the first two remote printers are pre-defined. The following is a description of all remote printers:

- ***PRINT1** is set to print at a remote location (such as the home office)
- ***PRINT2** is set to print at a remote location in addition to the local printer.
- ***PRINT3** creates an Excel file
- ***PRINT3-9** are user modifiable.

To define remote printers, perform the following steps:

1. Click **Setup *PRINT1-*PRINT9** node. The table below provides an explanation.

Setup *PRINT1-*PRINT9



Setup *PRINT1-*PRINT9 X
Development/Security [1]/Maintenance/Firewall/Setup *PRINT1-*PRINT9 (Admin: *FULL)

Setup *PRINT1-*PRINT9

Option

Option	User parameters	Save	Hold	Description
*PRINT1	CONTROL SMZTMA	No	No	OUTQ to print on the remote
*PRINT2	CONTROL SMZTMA	No	No	Local+OUTQ that print on the remote
*PRINT3		No	No	
*PRINT4		No	No	
*PRINT5		No	No	
*PRINT6		No	No	
*PRINT7		No	No	
*PRINT8		No	No	
*PRINT9		No	No	

1/9

Open...

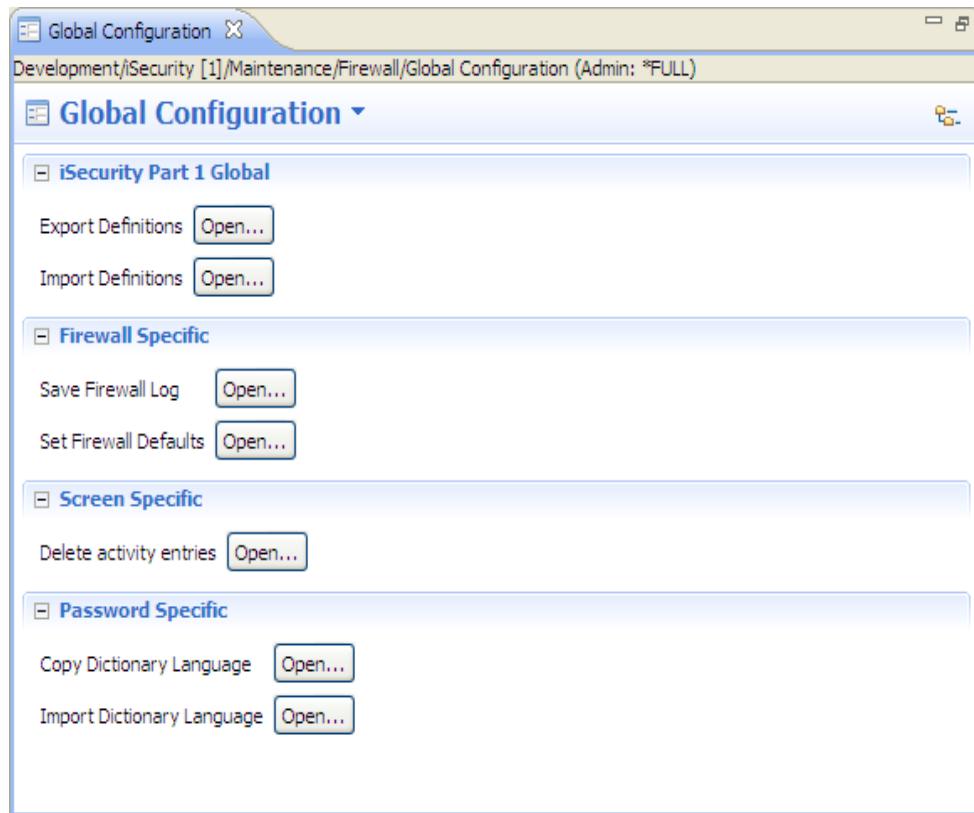
Setup *PRINT1-*PRINT9

Options/Parameters	Description
Option	Which remote printer to (see above description)
User Parameters	Name of the local output queue and its library
Description	Optional descriptive text

2. Select an option and click **Open**. The **Print Exit Program - Edit** dialog box appears.
3. Enter user parameters and description and click **OK**.



Global Configuration



Global Configuration

The following pages describe each individual feature and explain the procedures.

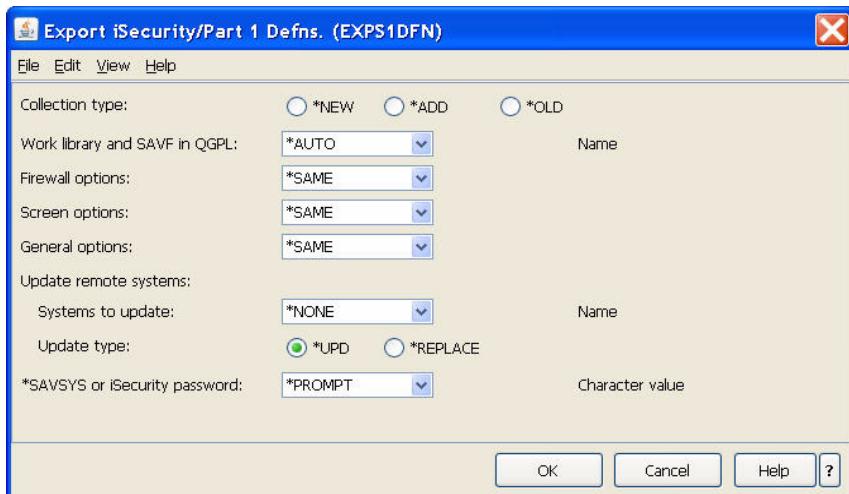
iSecurity Part 1 Global

Export/Import Definitions

Export Definitions and Import Definitions are useful in transferring configuration settings from one System i to another.

To import/export definitions to another System i, follow this procedure.

1. Click **Open** near **Export Definitions** or **Import Definitions** (this chapter uses Export as an example). The **Export SecPart Definitions** dialog box appears. The table below provides an explanation for both Export and Import Definitions.



Export SecPart Definitions

Option	Description
Title Library Prefix	S1 = Choose a prefix for the libraries where the definitions will be stored
Title Library Name	Enter name of library where definitions will be stored (prefix + name = 10 characters)
From Library	The library where the definitions are taken from
Keep backup in library	Where backup definitions are kept (begin with prefix S1)
Firewall System i options	*ADD = Add to a previously imported/exported rule *REPLACE = Replace a previously imported/exported rule *BYSUBJECT = Import/export rules by subject (IP address, etc.) *SAME = Do not change
iSecurity options	Same as above

2. Set your parameters and click **OK**.

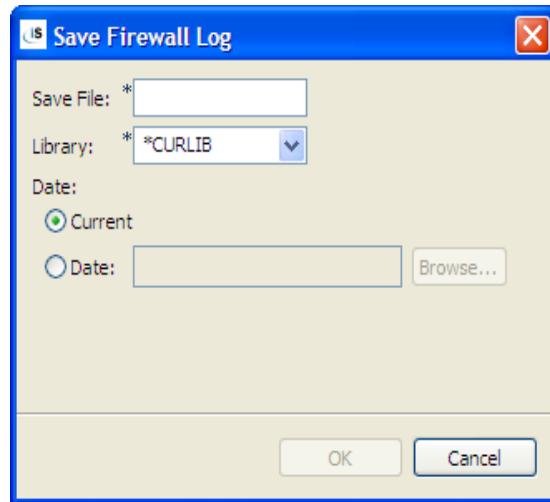
Firewall Specific

Save Firewall Log

This option enables you to configure **Firewall** security defaults.



1. Click **Save Firewall Log - Open** in the **Firewall Specific** field. The **Save Security Log** dialog box appears. The table below provides an explanation.



Save Firewall Defaults

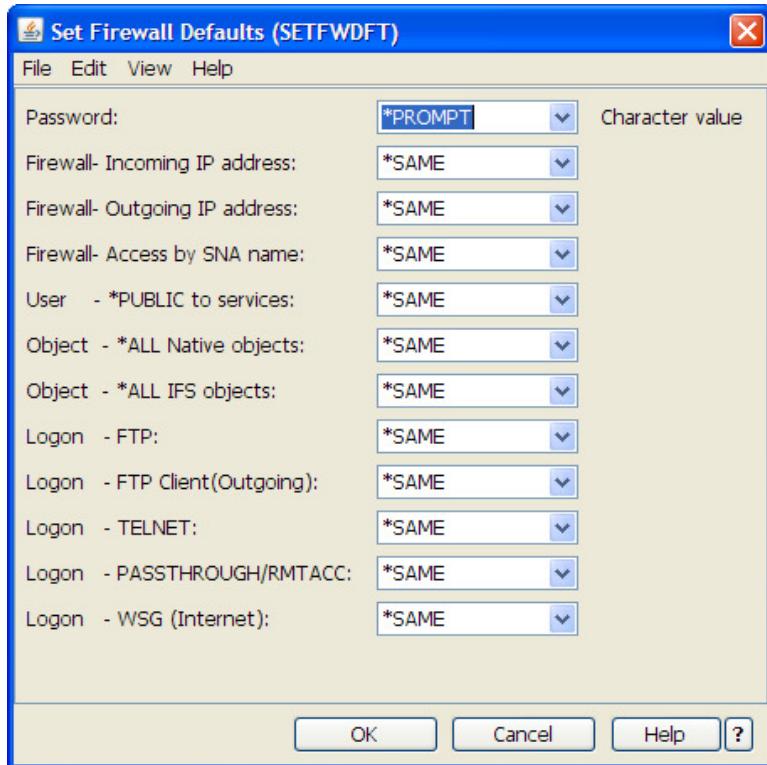
The table below provides an explanation

Options/Parameters Description	
Save file	File name
Library	*CURLIB = Location of current library
Date	*CURRENT= Current date

2. Set your parameters and click **OK**.

Set Firewall Defaults

This option enables you to configure **Firewall** security defaults. The table below provides an explanation.



Set Firewall Defaults

Options/Parameters	Description
Firewall-Incoming IP address (servers)	*ALLOW = Allow all activity for this server *REJECT = Reject all activity for this server *STD = Predefined values set according to initial security regulations *SAME = Keep defaults as they are and do not change



Screen Specific

Delete Screen Log Entries

Use this feature to delete Screen Log entries by date. The table below provides an explanation.

The dialog box has a title bar 'Delete Activity Entries (Screen)'. It contains the following fields:

- Date: Current, Until Date: [text box] [Browse... button]
- Job description: QBATCH
- Library: *PRODUCT

At the bottom are 'OK' and 'Cancel' buttons.

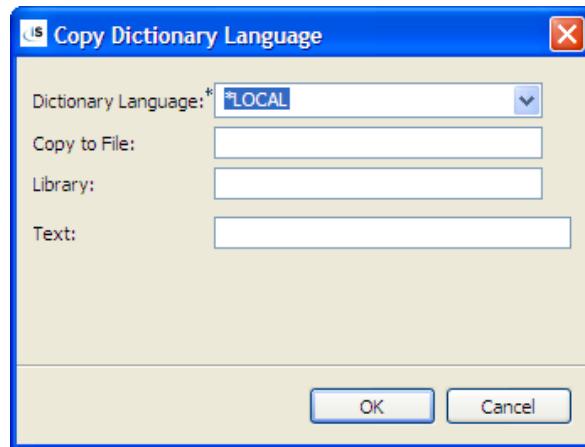
Delete Screen Log Entries

Options/Parameters	
TODATE	Last date from which to delete screen entries
Open: Job Description	
Open: Library	*PRODUCT = *LIBL = *CURLIB =

Password Specific

Copy Dictionary Language

This feature works as a backup feature, enabling you to copy or import your language file to a different host system. The table below provides an explanation.



Copy Dictionary Language

Options/Parameters	Description
Dictionary language	*LOCAL = Host language
Copy to file	Destination file
Library	Destination library
Text	Descriptive text, no more than 50 characters

License Agreement



Appendix: License Agreement

GNU LESSER GENERAL PUBLIC LICENSE Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307, USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below. When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it. For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library. To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by



obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license. Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library. We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License. In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library. The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you". A "library" means a collection of software functions and/or



data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables. The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification").

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library. Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

- 1.** You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library. You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.
- 2.** You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
 - a.** The modified work must itself be a software library.
 - b.** You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
 - c.** You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
 - d.** If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful. (For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied



function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it. Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

- 3.** You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices. Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy. This option is useful when you wish to copy part of the code of the Library into a program that is not a library.
- 4.** You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange. If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.
- 5.** A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License. However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses



the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law. If such an object file uses only numerical parameters, data structure layouts and accessories, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.) Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

- 6.** As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a.** Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
- b.** Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.



- c. Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d. If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e. Verify that the user has already received a copy of these materials or that you have already sent this user a copy. For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

- a. Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
- b. Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its



terms and conditions for copying, distributing or modifying the Library or works based on it.

- 10.** Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
- 11.** If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances. It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

- 12.** If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
- 13.** The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any



later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION. 16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS